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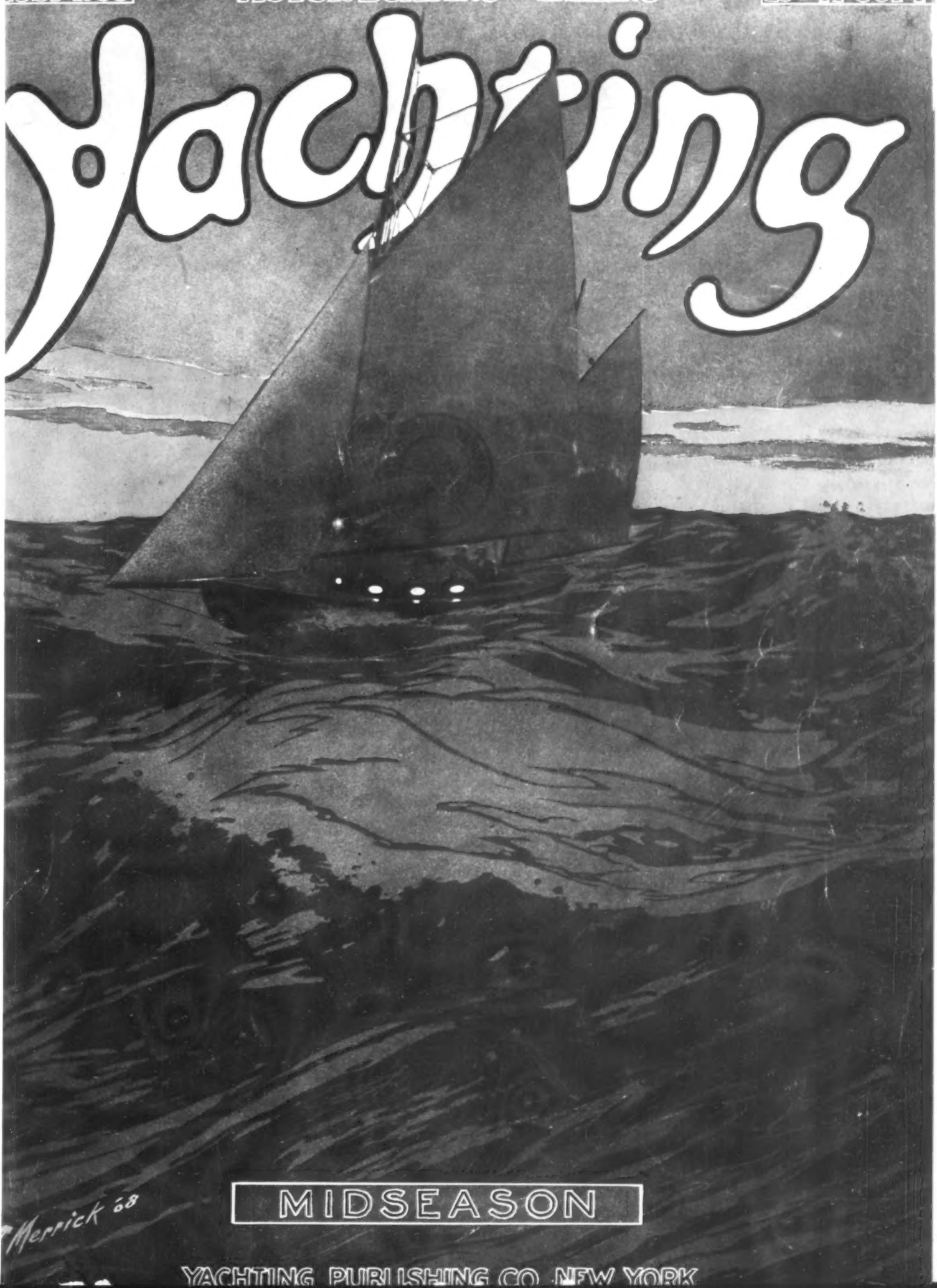

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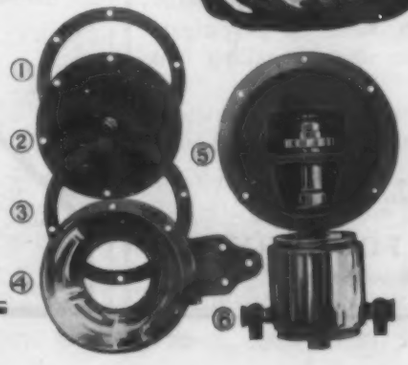

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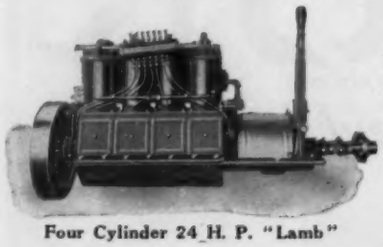

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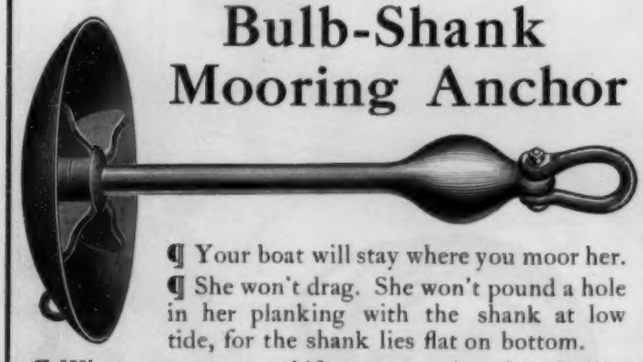

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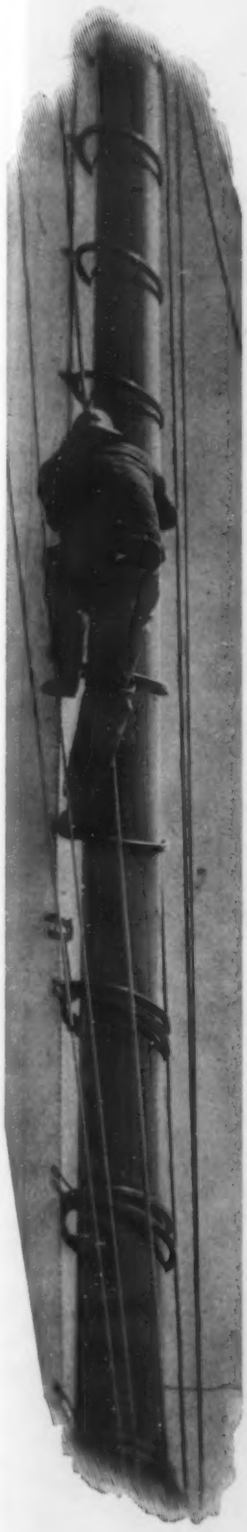

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LAWRENCE PERRY, Editor

Published Monthly. 25 cents per copy. $3.00 per year. For Foreign Postage add $1.00. For Canadian postage add 50c.
Copyright, 1908, by Yachting Publishing Company.
Entered as Second Class Mail Matter at the Post Office, New York, N. Y.

YACHTING PUBLISHING COMPANY, 20 Vesey Street, NEW YORK, N. Y.

IN THE TURBULENT GULF STREAM—"ENDSAIL E. G. BLISS" AT FIRST SCHOONER, WHICH FISHERS FIRST AT BERMUDA

PRINT IN

LIBRARY of CONGRESS
Two Copies Received
JUL 30 1908
July 18, 1908.
CLASS A XXc. No.
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YACHTING

VOLUME IV. NUMBER 2

August, 1908

25 Cents a Copy
$3.00 a Year

WHEN THE DINGHIES WERE NEARLY WASHED AWAY.

THE POST OF DANGER. MEN SWEPT BY WAVE ON BOWSPRIT.

WET WORK ON ZUHRAH. STRAIGHTENING OUT MESSED GEAR.

FLATTENING THE TACK OF THE MAIN TOPSAIL ON ZUHRAH.

The Marblehead-Bermuda Ocean Yacht Race From the Deck of Zuhrah

WHEN THE SUNLIGHT WENT OUT AND THE BLUE WATERS OF THE GULF STREAM TURNED BLACK AND BEGAN TO SNARL, THERE WAS STRENUOUS WORK FOR THE AMATEURS ON THE FOUR YACHTS WHICH LEFT MARBLEHEAD IN JUNE—HOVE-TO IN GALES, RUNNING BEFORE THE TEMPEST, OR SCUDDING WITH LEE RAILS AWASH, THE THRILL OF THE OCEAN RACE WAS AT TIME ALMOST TOO IMPRESSIVE

By L. DE B. HANDLEY

TO most persons the term "ocean yacht race" conveys only pictures of luxuriously appointed yachts sailing smoothly over mirror-like waters, while the owner and his guests sit about the deck in smart clothes smoking cigarettes and drinking cooling beverages. In reality they are trips on which storm and danger are among the probabilities, and the Corinthians who ship aboard an ocean-racing yacht generally do so with the understanding that they are going as crew, to help win, and that their duties are going to be much the same as those of the men before the mast.

Hard work? Of course it is; at times of the hardest, yet there is a fascination about it that grips and holds one. The lover of the sea seldom dreads it, even in its worst phases. If the thought of shipwreck ever enters his mind, it is only a remote possibility upon which he gazes impersonally; never definitely connecting it with himself. So it is that storms bring to him exhilaration instead of fear. He finds keen joy in fighting the elements, and a satisfied feeling of victory steals over him after they have been conquered. Ocean racing is destined to prosper, for once the sea sets its spell on one it never lets go.

BIRD'S-EYE VIEW OF BERMUDA, THE OBJECTIVE POINT OF THE RACE.

When ex-Commodore Doscher, of the New Rochelle Yacht Club, decided to enter the schooner Zuhrah in the Bermuda race for the second time, he had her fitted out with new spars, sail and rigging from keel to pennant, and then asked his mates of a year ago, George Granberry, of the New Rochelle Yacht Club, and Walter Sullivan, of the Harlem Yacht Club, to go with him again, and to find half a dozen experienced Corinthians for extra crew. Both accepted the invitation and lighted upon Jack Dwyer, owner of the raceabout Rascal; Dr. Martin, owner of the yawl Walla-Walla; Bud Hotine, and the writer, to sail with them. This, with Captain Hotine and four professionals, brought the working forces of Zuhrah to eleven men, without counting the owner.

The crowd met on board the steamer Harvard, and a merry and expectant one it proved to be. All the way up the race provided an interesting topic of conversation, and the subject was far from exhausted when we struck Marblehead at

IN BINDING

Watching a Comber from Esperanza.
Water ran like a mill race along Esperanza's lee scuppers.
When the Lee Rail went under.
A long, lazy wave diving under Esperanza.

noon, on June 2, but there was much to do on board and the discussion was abandoned to slip into working togs. While the professionals attended to shore matters and provisioning the boat, the Corinthians replaced harbor fixings with stout cruising articles, lashed down dories and spare spars, stopped up every loose sail and found a hundred other things to do. It was late afternoon when the captain pushed back his cap and, gazing about with critical eye, indulged in a satisfied smile.

"I guess everything is at last ship-shape," he said. "We are now ready to start at a moment's notice and can rest until morning." So we all went ashore and took in the beauties of that wonderful little harbor of Marblehead.

It was the commodore who was up first the next morning, and he called ablutions at 6 o'clock; then came breakfast, and while we were assembled he divided the watches. He himself was to serve with First Mate Sullivan, Dr. Martin, myself and two of the professionals; John, a lusty Dantzig lad, with the strength of a hercules and the agility of a gorilla, and Gus, a clever and wide-awake Swede, who had seen much racing on the Sound. On the captain's watch were Second Mate Granberry, Dwyer, Hotine and the two other sailors; Bill, a lanky, steel-muscled old salt, who knew as much about the sea as Father Neptune himself, and Jack, a rollicking sailor-boy type of seaman whom we christened "Jack Tar," as distinctive from Jack Dwyer. It was a curious mixture of amateurs and professionals and at first a little confusion reigned. It was a case of "Where is that confounded jib halyard?" and of "Where on earth do you belay the throat jig?" But soon the place of everything was learned, and after a couple of days out not a man but could have found—and often had to—any rope in the dark.

At 10 o'clock sails were hoisted, and half an hour later Commodore Henry V. Morss' handsome schooner Dervish, winner of the Bermuda race of 1907, swung gracefully from her moorings and, filling in the light breeze from the south-southeast, passed out into the open. Mr. Bliss' little schooner Venona weighed anchor next, and then came in quick succession Mr. Crozier's sloop Marchioness, Mr. J. D. McKee's steel schooner Esperanza, the Zuhrah and the frail-looking Edith Anna. There was no jockeying for position at the start. The boats kept well apart and crossed the line shortly after 11:15, the Dervish leading, Zuhrah next and Esperanza close on. Five minutes later the smaller boats of class C were sent off well bunched.

With the wind from the south-southeast we could just lay our course close-hauled, and in the light breeze Dervish opened its lead rapidly. Later the wind increased and we began to do better, but the sea became lumpy and it bothered us. The water leaped up in a mass of spray whenever we hit a wave, and the dinghy, which still swung from the davits, began to fill, so we took it in.

The deck was at an angle of some 40 degrees and water poured in over the rail. We had our first taste of real sea life. Standing in water up to our knees, with the rolling of the boat throwing us around like nine-pins, we had to lift the heavy dinghy on board and then lash it down. It was not an easy task, but we accomplished it safely, and then the commodore's whistle piped "all hands aft" and the men came piling astern, with broad grins of anticipation on their faces. Mr. Doscher always allows his crew their grog after any unusually hard bit of work.

As afternoon wore on, the boats of class C fell further and further back, besides going more and more to leeward until we finally lost sight of them. When last seen, the Marchioness was leading, a good deal to leeward of the Venona, and the Edith Anna brought up the rear. We heard later that the latter had been disabled and had turned back.

The three boats in class B were making a pretty fight of it, positions often changing, with never any material advantage. At sundown Dervish had the windward berth, with Esperanza next, and Zuhrah to leeward, all almost on a line. The captain having taken the first dog-watch, from 4 to 6, we of the port watch were

on from 6 to 8 only, but when eight bells struck and the others came out to relieve us, it was too fine a night to go below. With every inch of canvas crowded on, rigging straining, and rail awash, the good old Zuhrah was foaming grandly through the rough water, which a brilliant moon flooded with silvery light. Stretched out side by side on deck, we silently watched the red lights of the Dervish and Esperanza pass ahead or fall back, drinking in thirstily, meanwhile, the wonderful charm of a perfect night at sea. At 10 o'clock the mate ordered us below, despite our pleadings, and no sooner had we hit our bunks than we began to dream of victory.

It seemed but a few seconds later that a voice called the port watch on deck. And what a difference those two hours had made in our feelings! There was no enthusiasm left in us for moonlight and racing. We were just very tired and very sleepy and we would have given a good deal to fall back on the pillows for another snooze. But we tumbled out, instead, and, donning oilskins, went to the relief of the starboard watch. The red lights were still alongside and there we kept them all night.

By Thursday morning we were in the proximity of the Gulf Stream, and every hour, when the log was written up, the temperature of the water was taken. The stream registers from 70 to 78, and the water north of it is at this time about 65, so that the difference is sufficient to indicate whether one is in it or not. It was 12 o'clock before we had the looked-for rise.

Few people have a true conception of the Gulf Stream, that great river of lukewarm water that wends it way along the American coast. It is so generally spoken of as beautiful that one seldom associates with it the idea of storms or squalls. Yet there is hardly a more dangerous, treacherous and variable bit of water in the world. The weather seems to suffer changes every few miles in it, and the squalls that are met frequently are fierce in their intensity. One has to watch the barometer as a cat does a mouse, and at the first sign of its dropping begin to shorten canvas.

It was a hard day for the crew. The wind shifted often, requiring constant changes of sail, and almost every rag we had was used. During the day a few flying fish were seen and a flock of Mother Cary's chickens followed us. Gus said they heralded good weather, but as they accompanied us throughout every storm we later encountered I have lost faith in his assertion.

With calm sea, and a moderate but steady breeze, the afternoon resembled a pleasure sail on the Sound. Magazines appeared, the phonograph was brought out, and even Dick, a cheerful little canary that Mr. Doscher carried as a mascot, was given an airing and chirped its glad approval.

At daybreak on Friday we three of class B were still in sight of each other, but owing to the wind having gone around to north, the Zuhrah not only led, but had the windward position, with Esperanza close on the starboard side, and Dervish about five miles beyond. And here there occurred one of those unexplainable flukes that so often win or lose races. A lucky slant of breeze which passed both Zuhrah and Esperanza without touching them alighted on the white sails of Dervish and, pushing her suddenly on, soon left us hull down, fuming but helpless. And that was the last we saw of her.

The day was uneventful, except for a slight accident. The maintopmast staysail halyard chafed through and the big canvas came tumbling down, but John was up the mast like a cat and in a minute or so had the halyard reeved through the block again. That halyard was unlucky, though. It parted full seven times during the trip. Friday was the only day on which the crew had time during the entire race to clean brass. The fact is worthy of note.

At noon the sky clouded over, and the wind, which had gradually worked around to northeast, now veered to east-southeast. Then the sea began to rise and the wind increased steadily, but we carried topsails and fisherman's staysail throughout the

Schooner Venona.—Her Lee Rail was buried for 48 hours.
One of the "mild days." Sailors repairing sails.
Venona reeling off 11 knots.
After the race, visitors to Zuhrah entertained by phonograph.

"ARE WE IN THE GULF STREAM?" TAKING TEMPERATURE OF WATER. STEAMSHIP IN SIGHT. HOISTING CODE SIGNALS.

night and the boat behaved well.

Daylight showed Esperanza so close to us that we could distinguish the men on board. Both boats were making good way, heeled over far and raising white masses of spray and foam. Esperanza rode the waves well, rising high above them and then gliding lightly over, the red of her bottom at times showing clear amidship. But the wind kept on freshening and the baby jib was ordered stowed. The port watch was on deck, and Gus and John sprang out on the bowsprit, while the doctor jumped to the halyard, and I stood by on the bow to haul the sail in. Just then a vicious puff knocked the boat over, and before the mate could catch her she had rounded almost into the wind. As the bow met the waves head on at terrific speed, it plunged clean into them and a great lump of water was flung high into the air and came crashing on deck. The two men on the bowsprit disappeared completely from sight, and my lips almost formed the cry "Man overboard!" so impossible did it seem that they could have withstood the fury of the impact, but an angry yell of "Pay her off; damn it, sir, pay her off!" reached my ears, and I saw two very pale-faced seamen emerge from the water, dripping and clinging close to the stay. Both were hatless, showing how thorough had been the ducking and how narrow the escape.

As the baby jib came down, we saw Esperanza house her topsail. They had evidently wanted to shorten sail before, and were ready to, but awaited our move for fear of losing ground. Our own topsails followed the jib, and then the boat, relieved of the smothering canvas, righted a little and stepped out in lively manner. It was a mad race for a few hours after. With only her lower sails, Zuhrah still had her rail awash and ploughed through the rough water with a speed that sent the spray flying in great clouds. We had an automatic log on board and the indicator had been marking over 10 knots for several hours, but now it rose to 11, 12, and for a few minutes hovered around 13. With eager looks we watched the dial as the hand rose and then, when 13 was touched, the commodore ordered drinks served. It is seldom, indeed, that a speed of 13 knots an hour is recorded on a boat of the size of the Zuhrah. In that four-hour watch we logged 45 knots, making 82 knots for eight hours.

It was growing more wet on deck every minute. Although the boat was heeled over considerably, the waves crashed right over the windward rail and now and again broke over the stern. Luckily, everything was lashed down securely.

Breakfast was eaten under difficulties, and the cook reported that no more hot meals could be prepared until it moderated. It was bad news. Even the simple process of flattening down a sail assumes Titanic proportions in a blow, and the cry of "All hands on deck" is frequent. When a man works hard and steadily for several hours, wet to the skin, cold, and without sleep, he needs warm food badly, and pick-up lunches are not very satisfying to him.

BAROMETER FALLING. MAKING EVERYTHING TIGHT. GOING ALOFT IN A BLOW. SCHOONER ESPERANZA.

In the early morning of this day, we were surprised to see Esperanza suddenly bear off before the wind and hastily lower her mainsail. We wondered what had happened, and learned afterward that she had split the sail and had to set a staysail while it was repaired. We did not see this. We were both traveling so fast that when our courses diverged we were soon hull down. That was the last we saw of our rivals until Bermuda was reached.

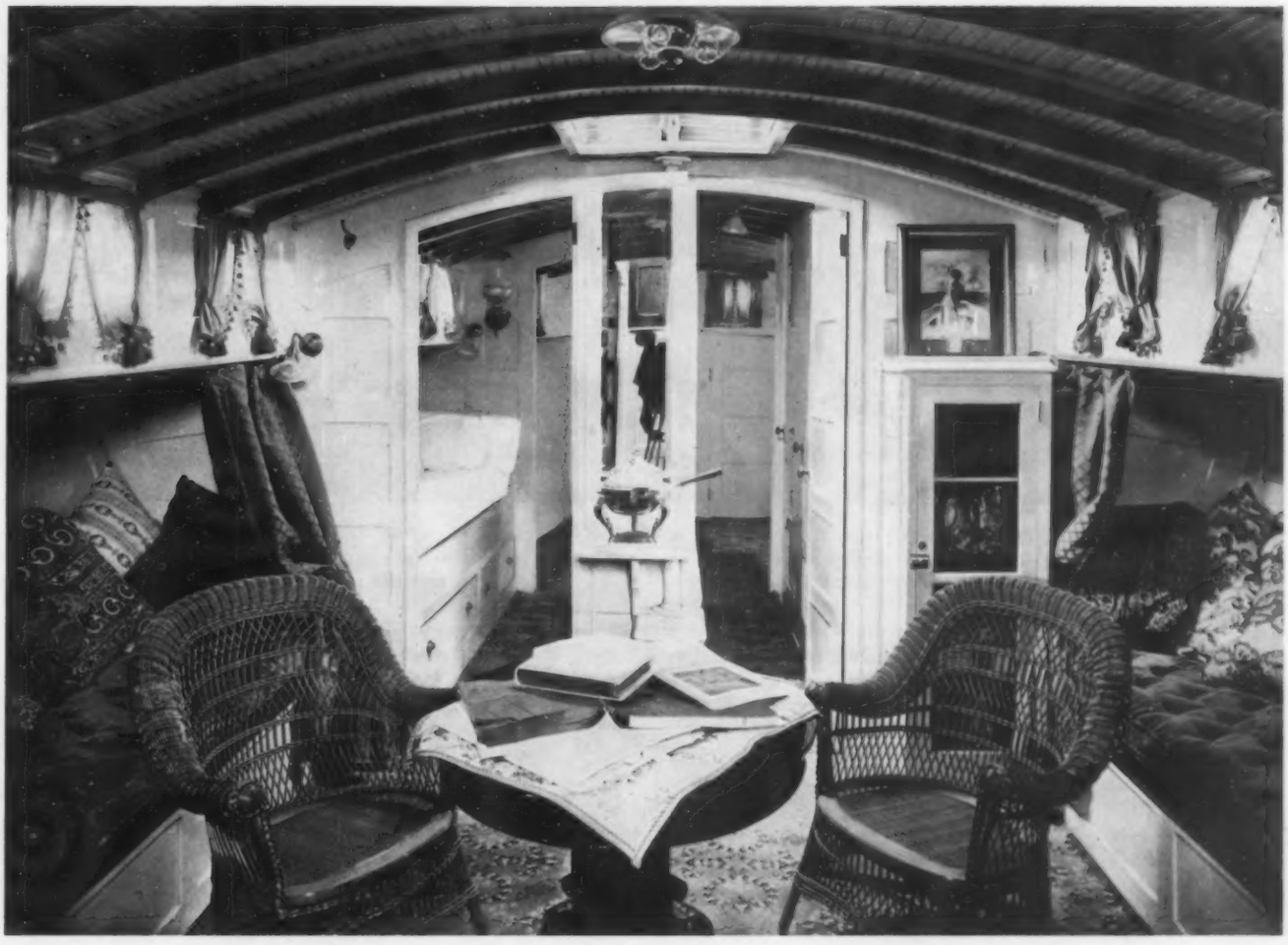
The sea was pounding us with a fury that seemed vindictive, and the boat pitched and tossed and shook until it seemed as if the rigging must give under the strain. The main boom would sag almost to within touch of the rail and then spring up into the air with terrific force, the sheet thinning out at the time as if made of

(*Continued on page* 110.)

ZUHRAH HOVE TO UNDER REEFED FORESAIL. AN INCIDENT OF THE GULF STREAM.

ZUHRAH PASSING THROUGH TWO-ROCK PASSAGE AT ENTRANCE TO HAMILTON HARBOR.

IN THE GULF STREAM. ZUHRAH PLUNGING DOWN A GRAY BACK.



A SPLENDID ARRANGEMENT OF SALOON AND STATEROOM. THE BED OF THE STATEROOM IS OF THE BUILT-IN TYPE, WITH TWO BUREAU DRAWERS UNDERNEATH. THE LOCKER SEATS IN THE SALOON ARE SO ARRANGED AS TO BE SHUT OFF BY CURTAINS WHEN DESIRED FOR USE AS BERTHS.

Motor Boat Interiors

HOW THE CABINS OF POWER CRAFT ARE DIVIDED AND FURNISHED—LUXURY VS. PRACTICABILITY

By K. E. TREADWELL

Photographs by Edwin Levick

THE internal economy of a motor boat allows of much more freedom in its arrangement than that of any other type of craft. There is no centerboard trunk which, while disguised as a bulkhead, or a table support, cuts up the very best part of a boat's interior and arbitrarily places divisions where they are probably, in nine cases out of ten, most inconvenient.

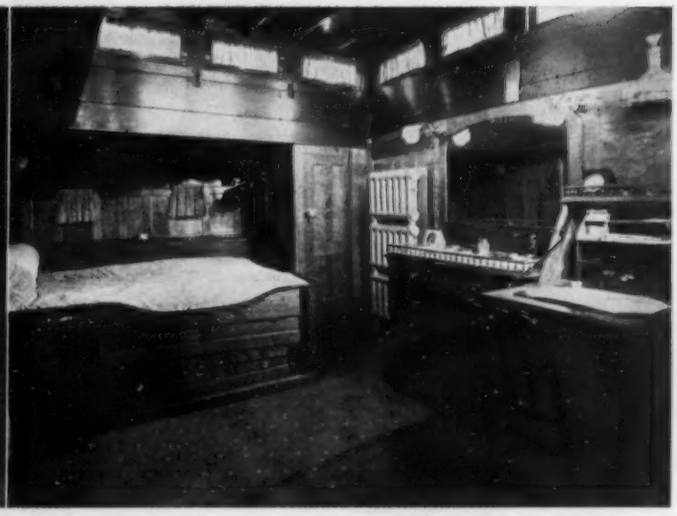
There is no engine room with boilers, complicated machinery and all the appurtenances thereto, taking the very best portion of the heart of the boat for its own accommodation, allowing owner, guests and crew, room by sufferance only wherever they may be stowed without intruding on the power plant. The motor of a craft propelled by an internal combustion engine is so economical of requirements in the way of space and adapts itself so well to installation almost anywhere that the designer of a power boat may divide the accommodations of his boat in practically any manner that seems good unto himself—all of which is a big recommendation for the power boat, and often explains what may, in some cases, appear to be rather freakish layout, but which is often really an arrangement particulary suited to special individual requirements.

As already stated, you can stow the motor almost anywhere. In the smaller type of craft, say from 40 feet downward, the power is generally installed aft, under the rear portion of the cabin, or in many cases, particularly in the smaller types, beneath the bridge or the raised flooring of the self-bailing cockpit.

In such an arrangement the entire forward end of the boat is left free for sleeping and living purposes. The arrangement of sleeping quarters is largely a matter of a combination of the owner's taste and the amount of room at his disposal. The sliding-top transom which, on being pulled out, forms a bed at night, has always been, and will probably always remain, very popular.

Of late there has been a strongly marked tendency to arrange for storage space underneath the transoms in the form of drawers in which clothing may be placed conveniently and in

OWNER'S STATEROOM ON BOARD CACTUS II. THIS ARRANGEMENT OF SINGLE BERTHS, ONE ABOVE THE OTHER, ECONOMIZES SLEEPING ROOM, BUT SACRIFICES STORAGE SPACE.



OWNER'S STATEROOM ON 105-FOOT AUXILIARY SCHOONER HAIDA. THE BUILT-IN BED HAS BUREAU DRAWERS UNDERNEATH AND A DRESSING STAND AT THE HEAD.

orderly fashion, instead of the old hinged-top locker-box, which was more or less of a catch-all, and necessitated burrowing down to the bottom whenever anything was wanted.

Where room is a prime requisite, as, for instance, in a combination forecastle engine room, pipe berths which, when not in use, hinge up flat against the wall, are neat, serviceable and very comfortable. Where the craft is of sufficient size for use as a floating summer home, or for lengthy cruises, and is possessed of one or more staterooms, the general tendency is now in favor of a built-in bedstead, furnished with regular springs and so arranged that by means of drawers beneath, it makes a most admirable bureau of very large capacity. Of course, an arrangement such as this is rather ambitious, but it is so comfortable that one is well repaid for the amount of room which it occupies in the cabin.

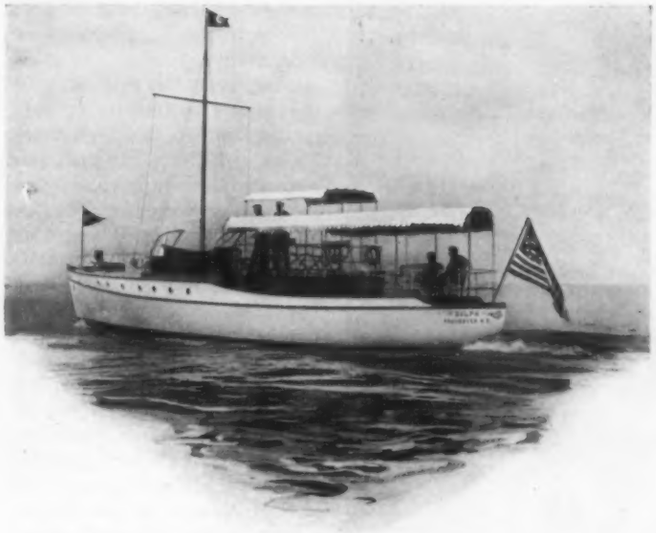
Upon the manner in which the saloon is arranged depends, to a large extent, the amount of comfort with which guests beyond the regular stateroom capacity may be accommodated. By an arrangement of buffets, closets or wardrobes at the four corners of the main saloon, it is possible that the transoms between them, along each side, may at night be shut off by curtains sliding on rods and converted into minature sleeping apartments, more commodious and comfortable than the average Pullman car berth. In a 35 or 40-foot cruiser, a pipe berth in the engine room will accommodate an extra guest, and yet be quite unobtrusive when not in service. On a craft of 45-feet and upwards in length, the engine is often placed well forward. In such cases a raised deck will give sufficient head room to the engine compartment to allow its being made a very comfortable living place for the crew. If the raised deck is carried well aft, it will be possible to have the galley also forward, as there will be sufficient head room to allow the cook going aft with the food. Where, however, the boat is of the type combining a raised deck forward with a low steerage bridge amidships and a raised trunk aft, the obstruction caused by the bridge deck will necessitate the placing of the galley at the after end of the raised trunk.

MAIN SALOON OF THE 93-FOOT DIXIE. THE SIDE PANELS DROP DOWN, FORMING PULLMAN BERTHS VERY SIMILAR TO THOSE IN A SLEEPING CAR. THIS ARRANGEMENT ALLOWS THE USE OF MOVABLE FURNITURE IN DAYTIME.

Getting beyond the class of the 35 and the 40-footers, and reaching the power yacht of 70 or more feet, one arrives at a type of craft on which it is possible to enjoy one of the features which has made the steam yacht the highest type of luxury—the deck-house dining-room. Such an apartment, with its large windows, giving a view on all sides and supplying plenty of fresh air, is, particularly on river craft, one of the pleasantest enclosed portions of the craft during the days afloat. In cold, rainy weather, it is warm and comfortable, and yet the yachtsman may see whatever is going on around him. It has many of the advantages of the open deck, combined with protection from too boisterous weather. It is a saloon, a dining-room and a social hall and, on a pinch, may be divided off by curtains and accommodate a number of extra guests with sleeping quarters.

The motor boat is not only elastic in the opportunities which it offers for arrangement of cabin space to suit the individual owner, but it possesses the same adaptability in the way of simple or profuse decoration. The cabins can be finished in bright oak to suit the plain business-like cruiser who wants to keep down the cost, or she can present a series of cabins finished in mahogany, bird's-eye maple, or any other fancy wood which he may select. No matter, however, how rich the trimming, the experienced yachtsman usually has the ceiling and the upper portion of the partitions below deck done in white enamel, to secure the greater illumination which this produces, especially in a craft lighted by port holes.

While a sliding door is the



DOLPH, A 57-FOOT CRUISER. HER CABIN ACCOMMODATIONS ARE SO CLEVERLY LAID OUT THAT HER OWNER'S CABIN CONTAINS TWO LARGE BEDS AND A DRESSING TABLE.

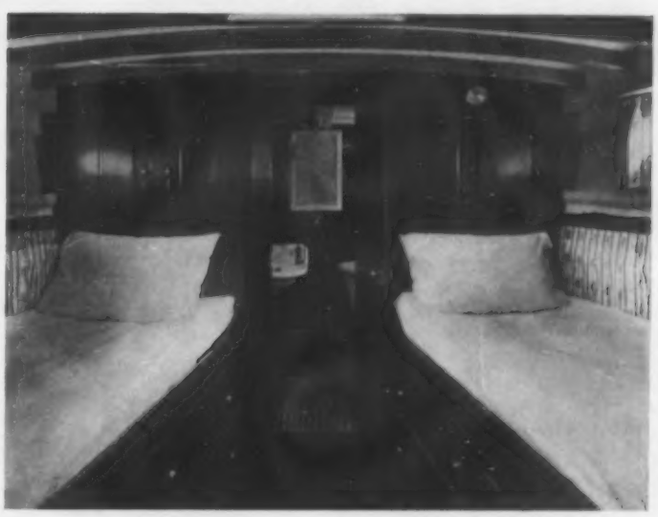
OWNER'S QUARTERS ON DOLPH, A 57-FOOT WATER-LINE POWER YACHT. TWO BUILT-IN BEDS, WITH DRAWERS AND LARGE DRESSER BETWEEN, GIVES A MAXIMUM OF SLEEPING AND STORAGE SPACE.

most compact arrangement it is, on account of the hanger at the top, impractical in craft of less than 6 feet head room. A man in a hurry is apt to forget the drop in the doorway, and to be reminded of it by a more or less forcible collision. One great advantage of the smallness of the average power-boat galley lies in the facility with which a man of ordinary length of arm may stand in the center thereof, remove something from the ice-box, put it on the stove, draw water from the sink and open the cupboard door while standing in the same place. If by hook or crook, the ice-box can be so arranged as to be filled from the outside, the lot of the cook, especially an amateur cook, is made about 150 per cent more cheerful. There is a vast difference between lifting up a hatch in the deck and letting the chunk of coolness gently subside into the receptacle below, and carrying that same bit of frigidity down the companionway steps, across the floor and then putting it up into the top of the refrigerator. Some builders claim that you can't make a deck hatch that is tight. You can if you build it accurately, and if it is rectangular in form, and the opening is brass-bound and lined, you will have something that won't stick when you want to open it in a hurry, and it won't be so loose that the refrigerator will be flooded when a whitecap makes an exploring expedition along the deck.

If the yachtsman wants cushions that are neat and serviceable, and which will not give him much cause for worry, he will find waterproof canvas tufted and stuffed with hair, businesslike and good-looking enough to harmonize with a very prettily appointed cabin. If he is yearning for something with a more opulent appearance and is willing to pay the difference, he can't do better than invest in imitation leather of the better grade, which will wear better than leather itself, and is about as impervious to weather conditions as anything that can be obtained.

The advantages of canvas or the imitation leather over plush are not only in their longevity, but in the fact that they will not require constant and continual drying out. In the matter of lighting, the luxuriously inclined can have as elaborate a system of gas or electric lights as in his own home. Or he may content himself with the humble kerosene lamp of more or less pretentious design and odoriferous tendencies. Some day, piano manufacturers will wake up to the fact that an upright piano, with a full keyboard, and measuring not over 48 inches in length would fit a good many motor-boat cabins and give a lot more satisfaction than a piano which has an octave cropped from its range of notes, because it is easier to build it that way than to make the whole

NESHAMINY. A TWIN SCREW HALF-CABIN GASOLENE LAUNCH, 65 FEET OVER ALL, WHOSE OWNER'S CABIN IS A MODEL OF COMPACTNESS, CONVENIENCE AND COMFORT.



OWNER'S STATEROOM OF 65-FOOT CRUISER NESHAMINY, LOOKING FORWARD, SHOWING SINGLE BERTHS ON EACH SIDE, WITH BUREAU DRAWERS.

mechanism in miniature, and when that manufacturer does wake up and put the instrument on the market, he will find his own reward.

The trunk cabin and forward raised deck have so transformed the arrangement of the modern motor boat as to have practically developed a new type of craft as far as cabin accommodations are concerned.

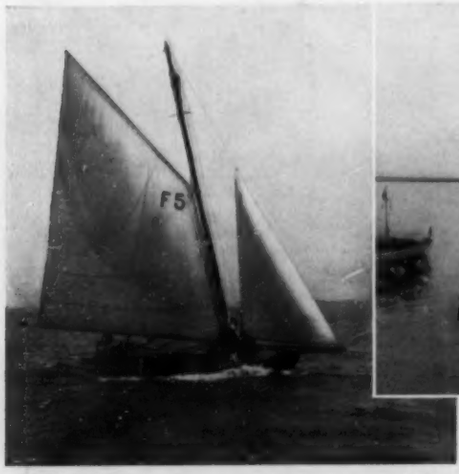
With the older glass-sided cabin of the "street-car" pattern, the steersman was located forward inside the cabin, while the engine was far aft, and the intervening space was divided up as best might be done. With the two principal operators, the pilot and engineer, at the two extreme ends of the craft, there could, on the smaller launches, be little real privacy of sleeping quarters, particularly if on long cruises it became necessary to change tricks at the wheel.

ENGINE ROOM AND CREW'S QUARTERS OF THE 75-FOOTER CACTUS II. THE FOUR PIPE BERTHS ARE SWUNG UP AGAINST THE SIDES, GIVING ROOM TO MOVE AROUND IN DAYTIME AND SERVING AS CATCH-ALLS.

With the modern type of cruiser, even the smaller ones, it is quite easy to so arrange quarters that the engineer bunks in the engine room, and steers and controls the engine from either a forward bridge or the after cockpit, according to whether the engine space is situated in the bow or under the after part of the cabin trunk.

In either case the crew may be kept out of the living quarters, and any number of changes of watch may be made without disturbing those not immediately interested in the actual work of navigation.

It is the possibility of arranging the interior to allow of such a happy state of affairs which has, to all intents and purposes, made a yacht of the moderate-sized power launch.



SPRAY. WINNER OF MICHIGAN CITY TIME PRIZE. SHE ALSO WON THE 21-FOOT CLASS PRIZE, DEFEATING THE NEW RACER COLUMBIA.

SCENE OFF THE CHICAGO YACHT CLUB JUST BEFORE THE PREPARATORY SIGNAL SOUNDED FOR THE RACE IN MICHIGAN CITY.

COLUMBIA. COMMODORE M'GUIRE'S NEW LIPTON CUP CHALLENGER. SHE LOST RACE TO SPRAY BECAUSE OF FAILURE TO DIAGNOSE CONDITIONS.

The Michigan City Race

By J. M. HANDLEY

Photographs by R. H. Hall

THE first big fixture of the yachting season on Lake Michigan was the Michigan City cruising race of the Columbia Yacht Club. This year's seventeenth renewal of the event brought out the banner fleet in the history of yachting on the Great Lakes, no less than sixty cruising sail boats and a big fleet of staunch cruising motor craft starting.

The race was characterized by light, fluky winds during the greater part of the course, and ended, for many of the boats, in one of the most violent squalls encountered early in the season. It was serious enough to capsize a sailing yacht from Michigan City that had gone to meet the racers, and to drive ashore the 35-foot fin-keel sloop Viola II. and to disable three of the competitors.

The victory went to Fred A. Price's wonderful little 21-footer,

Spray, which not only won the time prize, but was the first boat to finish.

In the light head wind, Spray and Columbia, Commodore McGuire's new Lipton cup boat, had as pretty a duel as had been seen on the Lakes. It was nip and tuck between the pair all the way over, and at sunset it looked as though Columbia had the race well in hand, but then Commodore McGuire made the mistake of allowing his rival to split tacks with him, and the failure to keep his adversary under his lee defeated Columbia, for Spray, stealing off to the southward of the course, caught a favorable slant of off-shore breeze, and sneaking up under the land stole into harbor a winner, while Columbia was just beginning to feel the wind and beat up to the finish line. It was a clever bit of "inside" knowledge of local conditions that gave skipper Price his victory.

The race, however, showed that in Columbia, Commodore McGuire has a wonderfully fast, light-weather boat. It was supposed that nothing could beat Spray in the light airs that prevailed in the race, but Columbia proved that the new Jones and Laborde boat is a marvel in soft weather, and if she proves as fast in a good, wholesail breeze, she will be a most dangerous contender for the Lipton cup. La Rita II. proved a disappointment to her owners, George Peare and Dr. Dickinson, but is expected to do better when fitted out with new canvas. Changes had been made in her rig that made her old sails fit so badly that she was practically out of the race from the start. She was beaten even by Quien Sabe of the 21-foot class. New spars, sails and rigging may make a different boat of her, however, and she is still looked on as one of the dangerous boats in the big event this month.

Illinois, Naniwa, Josephine and Seeboomook had a hot fight in the 35-foot class, with the Canadian boat proving best in the fluky going. Pilot and Chloris, two Jackson Park Yacht Club cracks, had their old tussle again in the 30-foot class, and again Pilot was returned winner after a rattling finish. Vencedor seemed to be unable to show her wonderful speed and finished third behind Spray and Naniwa.

The laggards caught the full strength of the squall which broke over the lake shortly after 11 o'clock at night. It came out of the northwest with an accompaniment of drenching rain, lightning and thunder, and the recorded wind velocity reached a maximum of 52 miles an hour. A big sea followed in its wake and drove the late boats before it like so many chips. Yachts in the harbor broke from their moorings and went amuck among the fleet, and even those coming in under bare poles, or with only storm jibs, set to give steering way, were checked with difficulty and brought up to the docks. Several narrow escapes were recorded, and in the darkness Viola II. ran aground 2 miles south of Michigan City.

Motor boats which had been in harbor since early in the evening went out in aid of the hard-ridden sail craft and brought several into harbor safely.

The motor-boat race was won easily by Dr. Gilmer's speedy Sacajawea, under the colors of the Chicago Yacht Club. Davis Brothers' big, new boat, Arapahoe, made a capital race, but seemed underpowered for her size. The Kitchi Gammi broke to give steering way, were checked with difficulty and brought up to lay up for repairs.

	Starting Time.	Finishing Time.	Elapsed Time.	Corrected Time.
SMALL CRUISERS.				
*Mohaki, Col.	12.00.00	11.02.45	11.02.45	10.06.33
†Valkyria	12.00.00	10.05.27	10.05.27	.....
TWENTY-FIVE-FOOT CLASS.				
Edith	12.05.00	11.00.00	11.01.00	9.22.03
‡Annine D. C.	12.05.00	.....	.....	.....
‡Edith	12.05.00	.....	.....	.....
Mildred	12.05.00	11.59.11	11.54.11	10.17.00
*San Toy	12.05.00	10.37.00	10.32.00	.....
EIGHTEEN-FOOT CLASS.				
*Thelma	12.05.00	10.30.17	10.25.17	9.17.15
*Pequod	12.10.00	9.45.35	9.33.35	8.05.47
†Seminole	12.10.00	10.17.10	10.07.10	.....
‡We're Here	12.10.00	.....	.....	.....
TWENTY-ONE-FOOT CLASS.				
Cock Robin	12.10.00	10.16.42	10.03.42	8.51.24
Freebooter	12.10.00	12.42.00	12.32.00	11.08.56
*Raven III.	12.10.00	9.38.30	9.28.30	8.15.36
Vandal	12.10.00	9.56.40	9.46.40	8.24.06
THIRTY-FOOT SLOOPS.				
Director	12.15.00	11.24.00	11.09.00	10.07.45
Chloris	12.15.00	10.03.50	9.48.50	8.39.45
Echo	12.15.00	.....	.....	.....
bGloria	12.15.00	.....	.....	.....
§Iris	12.15.00	.....	.....	.....
*Pilot	12.15.00	9.44.27	9.39.27	8.14.19
Smuggler	12.15.00	12.33.00	12.08.00	10.51.46
Susan	12.15.00	11.44.00	11.39.00	10.24.07
Thetis	12.15.00	10.29.41	10.14.41	9.15.39
bViola II.	12.15.00	.....	.....	.....
Widsith	12.15.00	12.45.00	12.30.00	11.33.48
Wizard	12.15.00	11.49.00	12.34.00	19.39.05
TWENTY-ONE-FOOT CABIN CLASS.				
Columbia	12.20.00	9.28.10	9.08.09	9.08.00
Quien Sabe	12.20.00	9.45.42	9.34.42	9.34.42
*Spray	12.20.00	8.53.30	8.33.30	8.33.30
La Rita II.	12.20.00	10.44.15	10.24.15	10.24.15
MEDIUM YAWLS.				
Kayoshk	12.25.00	10.55.53	10.30.53	10.17.46
*Naiad	12.25.00	10.55.00	10.30.00	9.31.01
Queen Louise	12.25.00	.....	.....	.....
Windward	12.25.00	11.45.00	11.20.00	10.00.34
LARGE CRUISERS.				
*Beatrice	12.30.00	10.24.40	9.54.00	9.10.37
Charlotte R	12.30.00	11.50.00	11.20.00	11.00.00
Niantic	12.30.00	12.11.00	11.41.00	11.20.00
Sadie	12.30.00	12.09.03	11.39.03	11.12.59

VIOLA II. ASHORE, SOUTH OF MICHIGAN CITY. THE LIFE-SAVING CREW TRYING TO GET HER OFF THE BEACH. THE SCENE IS INTERESTING AS SHOWING THE SAND DUNES OF INDIANA, WHICH ARE JUSTLY FAMOUS.

SMALL SCHOONERS.				
*Foam	12.35.00	10.51.05	10.16.05	9.35.23
Glad Tidings	12.35.00	11.41.00	11.06.00	10.33.16
Nomad	12.35.00	1.33.00	12.58.00	11.25.25
THIRTY-FIVE-FOOT CLASS.				
Evanston	12.40.00	10.35.55	9.55.55	9.08.09
*Illinois	12.40.00	9.12.40	8.32.40	7.46.09
Josephine	12.40.00	9.50.25	9.10.25	8.29.44
Naniwa	12.40.00	9.15.00	8.35.00	7.35.35
Seboomook	12.40.00	9.39.40	8.58.40	8.04.53
Mirella	12.40.00	11.37.00	10.51.00	10.22.45
LARGE YAWL.				
*Arcadia	12.45.00	11.07.00	10.22.00	9.14.28
LARGE SCHOONER.				
*Hawthorne	12.50.00	10.38.20	9.48.20	9.39.18
FIFTY-FIVE-FOOT SLOOP.				
*Vencedor	12.50.00	9.22.02	8.32.20	8.22.07
TWENTY-FOOT SLOOPS.				
Rebel	10.10.00	11.58.00	13.48.00	13.28.40
Little One	10.10.00	9.55.25	11.45.25	11.40.43
*Wenonah	10.10.00	9.34.10	11.24.10	11.18.05
Etowah	10.10.00	11.31.25	13.21.25	13.21.25
Paquita	10.10.00	11.42.45	13.32.45	13.32.45
TWENTY-FOOT YAWLS.				
bFawn	10.10.00	.....	.....	.....
bMudhen	10.00.00	.....	.....	.....
SPECIAL CLASS.				
Iroquois	12.30.00	10.13.00	9.43.00	9.04.57
*Minota	12.30.00	9.41.40	9.11.40	8.26.19

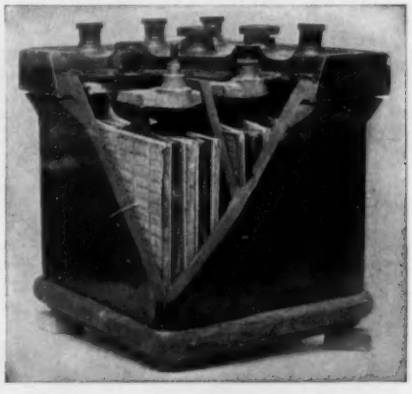
* Class prize winners.
† Not measured.
‡ Did not finish.
§ Towed.
¶ Disqualified for rowing.
a Broke down.
b Used engine.

A Few Points on Marine Motors and Accessories

By FRED CHESTER

Illustrations by Courtesy of Radio Battery Company and Herz & Company

WE will not, in this article, go into any discussion of the comparative merits or demerits of the two common systems of gasolene engines, the four- and two-stroke motors, but will confine ourselves to the two-stroke, which, in the writer's opinion, is far better suited to the work required of it than the four-stroke motors. To those who do not realize the fact, let it be said that the terms four- and two-cycle are perverted, and that four- or two-stroke, or four- and two-stroke cycle, are much more logical, expressing, as they do, more clearly to the mind the actual action of the piston of the motor to complete one cycle of operation.



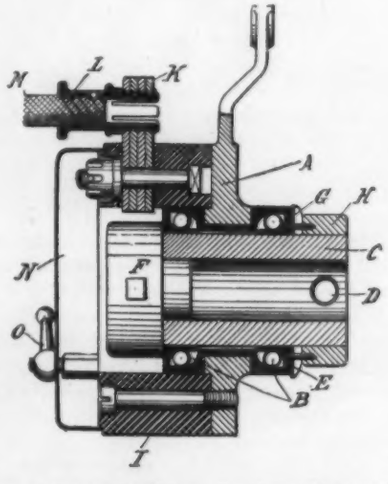
Cross section of storage battery, showing the positive and negative elements, partition dividing cells, binding screws and the escape valve, which allows the gas to escape when its pressure is greater than that of the atmosphere, but which will not allow the spilling of acid.

Many times the question has been asked, "Why is it that with an 'A' engine that has two cylinders with 5-inch bore and stroke and turns up to 600 revolutions per minute in my boat, I can't get near as much speed as I can with a 'B' engine, which is so much smaller and runs no faster or only slightly?" The answer to this question is obvious; much greater pressure is generated on the pistons of the "B" engine that on the "A." But the answer to the question, "How do they get it?" is not so simple nor obvious.

It is a question that the more progressive designers and manufacturers have been trying to answer, in practice, for several years and are now only beginning to find the real reasons, but having found them, or at least part of them, it has been possible and practical to build reliable motors which develop twice as much power per cylinder volume as was formerly considered good gas-engine practice. Another reason for the apparent variance in the power of two motors of the same size, is that many are catalogued at a much larger power than they are actually capable of developing at the announced speed, while others are rated honestly, on the basis of constant performance under a Prony brake, so that the horsepower given in the catalogue at a certain speed is not greater than the engines are capable of developing when properly adjusted.

This question is sometimes asked: "Why is it that a two-stroke motor requires so much better spark than the four?" The answer may be put in this way: That with a properly built and adjusted engine, a spark that will ignite the charge in a four-stroke motor will also ignite the mixture in a two. The trouble lies here: Very few engines of the two-stroke type are capable of producing in the cylinders a mixture that is as explosive as that usually obtained in a four, even provided that the carburetor, or mixer, is adapted to the engine. Also, among these few engines there are still less which have a mixing device designed to fill the conditions imposed on it by the motor. It is not enough that one should have a good engine to get good service, but this engine must be equipped with a *suitable mixing device*. The statement that any carburetor will work well if the engine is all right does not hold true. With the better grade of motors it is folly for one to take off the carburetor furnished by the manufacturer and put one of another kind in its place. It is the maker's business to equip his engine with the one best suited to it, and he has a far better opportunity of determining which that is than the individual owner. In almost every case where trouble is experienced from the spark not igniting the charge, it may be traced to an improper mixture, either due to wrong adjustment of the carburetor, or to faulty design of engine, or to the use of a carburetor not suited to the motor. It is not intended, however, that the reader should get the idea that if there is any spark at all, it is good enough, but that if it is good enough for work in a four-stroke motor, it is good enough for a two.

A few words about methods of ignition may not be out of place here. There is no question in the writer's mind but that the storage battery will give the best results, that is, more power, better speed, better economy, and less spark trouble than any other source of electric current when used for the jump-spark with vibrating coils. But for the owner of a small engine it is rather expensive and troublesome, because it must be recharged. Dry cells, when new, or more correctly speaking, when they register above twelve amperes, and the voltage is right for the coil, give power and speed equal to the storage battery on a one- or two-cylinder machine. But if on a three- or four-cylinder engine, the energy is used so fast that they cannot recuperate, and very soon the current output of the cells is so low as to materially lessen the power. Wet batteries are more or less of a nuisance on account of the slopping and spilling of the contents. There are, however, one or two makes that are nearly "slop-proof." The voltage of these cells is low, less than one volt, hence to get as good results it is necessary to use at least six cells. These batteries, being large, take up a good deal of valuable space, but they are more dependable than the dry cell. One other source of current may be used; that is, the magneto or dynamo. Contrary to the opinion of many, the writer has been unable to obtain greater power from an engine using a magneto for current than with a good set of dry cells or a storage battery. In fact the reverse has been in every case true. The difference is slight but noticeable.



Detail Vertical Section of a Timer.—A is steel base and advance lever, with hardened cups for the ball bearings B, C, the rotating center sleeve; F, contact plunger.

This sleeve is fastened to the cam or timer-shaft by the set-screw D. H is a collar fastened on the sleeve by means of two set-screws, holding a spring, G, which presses against the lower cove E, thus making the device self-adjusting. I is the hard-rubber insulation containing the contact K of steel plates with a brass sleeve, into which the terminal L is pressed. The latter is reversible, and can be attached either from the top or bottom. The wire M is attached to the terminal L by laying the wires over the outside of the insulation and screwing in through the threaded hole.

AURORA FINISHING, WINNER OF HER CLASS, JUNE 18

The Month in Yachting

Photographs by James Burton, W. B. Jackson and others

IN preparation for her race in defense of the Manhasset Bay Challenge Cup, Mimosa III has been having the benefit of racing this season in the New York Yacht Club regattas and in the events of other clubs along the Sound. At the present writing she reveals the need of further tuning up before she will be a worthy rival of Seneca, which has been entered by the Indian Harbor Yacht Club as challenger for the trophy at present in possession of the American Yacht Club of Rye. She sailed one race against Gardenia in the Manhasset Bay regatta of June 13, defeating this boat, a larger sloop, on time allowance. This was creditable—it is creditable for any yacht to beat Gardenia—and leads to the belief that when Mr. Wainwright has sweetened her up and got her well in hand she will make the Canada Cup winner sail to take the Manhasset trophy down to Greenwich. In her second race of the season, that of June 18, New York Yacht Club annual regatta, she withdrew because of fluky winds.

Of course, Addison G. Hanan will sail his sloop against Mimosa III. It will be remembered that he purchased the yacht from the Rochester Yacht Club after he had sailed her against Adele, the Payne-designed challenger for the Canada Cup. He has not had the opportunity of tuning up which Mimosa III has had, having been debarred from racing in New York Yacht Club regattas, because of extreme design. This withholding of certificate of measurement by William Hallock, the official measurer of the New York organization, should open the eyes of Canadians as to the sort of boat which prevented them from taking the Canada cup to the other side of Ontario last summer. However, so far as that goes our cousins of the North had a pretty well-formed idea as to her design and it is likely that when they challenge again they will bring a boat to the line which in no sense may be pronounced wholesome.

MIMOSA III. IN 1904 SHE WON THE MANHASSET BAY CHALLENGE CUP FOR 30-FOOTERS. SHE WILL DEFEND THE PRIZE JULY 29 AGAINST SENECA.

There are a great many first-class amateur sailors in the vicinity of Long Island Sound, but Mr. Hanan stands out prominently as a genius with the stick. So far as I know there is only one man who can compare with this clever Corinthian and that is Harry Maxwell. Mr. Maxwell, in the three seasons past, raced against "Charley" Barr, the king of all yachting skippers, and it would be far from truth to say that the great professional "had anything on" his amateur rival.

As a matter of fact, Mr. Maxwell won as many races as Barr; I might almost say won

more; it is my impression, so far as that goes, that the preponderance of victories rests with the young sailing master of Yankee, Queen and other successful craft. What I am trying to get at is this: Harry Maxwell at the stick of Mimosa III. It may not, of course, be possible. Other arrangements may have been made by Mr. Wainwright; but the thought of two fast yachts pitted against each other, with Mr. Hanan at the helm of one and Mr. Maxwell at the other, stirs the blood. That would be racing for you, and I do not believe any yachting expert would care to indulge in an offhand opinion as to which would prevail.

The Manhasset Bay cup was won by Mimosa III several years ago. The sloop was then owned by Trenor L. Park, who died this winter. Mr. Park was an ardent yachtsman and a splendid fellow and there was no one who envied him his victory, save perhaps the members of the Manhasset Bay Club, and their regrets were entirely sportsmanlike.

I saw Commodore Wilson Marshall's schooner yacht Atlantic at anchor off Larchmont a few weeks ago. Her long sleek, black hull rose gently on the Sound swells and her three trim masts speared the heavens. Commodore Marshall has not been cruising in his fore-an-after this year, having been abroad until recently, but will probably do something in the way of long-distance sailing in her before the season ends. She would be the ideal boat in which to negotiate the journey to Bermuda as one of the contesting craft in a race to that island. As safe, as staunch as an ocean liner it would, indeed, be a bobble of sea that would delay her. And yet the coastwise gales have tried Atlantic as they can try any ship that ever floated. With a northeaster screaming, several years ago she had the fight of her life in the heart of midnight turmoil off Hatteras. William Gardner, her designer, was aboard, and it is worth something to sit and hear him tell of that thrilling plunge through the night with most of her canvas set. Finally the topmasts sprung under the tremendous strain, and Gardner and the crew went along the deck taking in the slack of the stays by twisting the turnbuckles. Then, as the designer naively adds, "we doused some canvas." In the race across the ocean for the cup offered by the German Emperor in 1905 Atlantic raced under the skilled ministrations of Capt. Chas. Barr, won the contest and made a record which still stands, 11 days, 16 hours and 22 minutes from Sandy Hood to Bishop's Rock, off Scilly. Nowadays she lies at anchor well out in the Sound—as any schooner of ample draft is obliged to do on this beautiful body of water—and visitors to Larchmont are always welcome aboard.

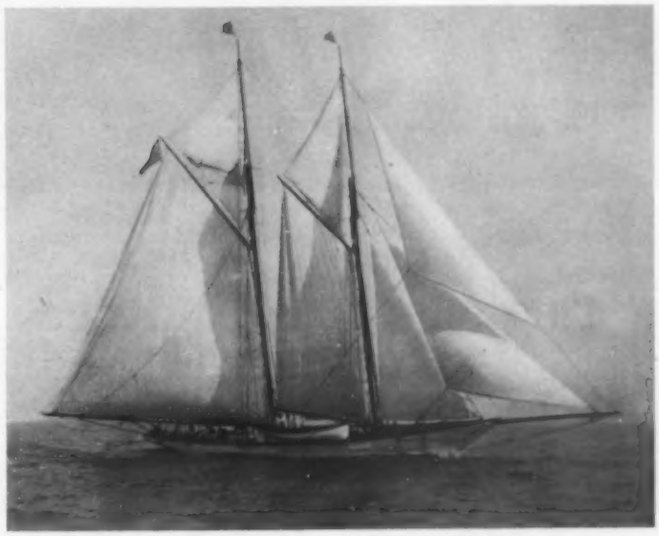
ATLANTIC. HOLDER OF THE TRANS-ATLANTIC RECORD FOR WINDJAMMERS. SHE HAS LED A PROSAIC LIFE THIS SEASON.

Here is a suggestion which those who have charge of the regattas of various clubs might consider. I refer to the practice of regatta committees in taking cups from yachts which have won them—basing their action upon errors of measurement—and turning them over to the boats which finished second. It has occurred to a great many thinking racing men that when a yacht is measured and enters a regatta and wins it, she should have what she won without further formula. Of course, under existing conditions this may not be possible; the point is that some action should be taken whereby such reform might be brought about. Care in measurement in the primary instance should prevent such mistakes, but assuming the mistake made it would seem that those whose duty it is to pass judgment upon the case should exercise their function moderately. I submit that the taking of the Astor Cup for sloops from Humma, in 1906, as a result of the discovery of a technical flaw in her measurement was a great injustice. Several years ago, when Mr. Duryea was sailing Yankee in the seventy-foot-sloop class against Rainbow, Mineola and Virginia, it was discovered after the season had closed that Capt. Parker had altered Rainbow's trim. Commodore Vanderbilt offered to return all the cups won by the sloop that season, but, if I remember clearly, Mr. Duryea refused the offer. Altering of trim in the middle of a racing season without saying a word to rival owners is, of course, unpardonable, but it was not because of so gross a fault that Humma's well-won cup was taken from her.

I see that Hawthorne, the fifty-three-foot schooner owned by C. E. Fox, et als., of Chicago, will again be a participant in the Mackinac race. She is a grand, good boat, built at Michigan City in 1893, and has always been in at Mackinac finishes. In season it is rare that you look seawards, or lakewards, rather, and fail to catch glimpse of the white sails of the Fox boat. In this way she might well serve as an object lesson to yachtsmen east and west, and for that matter there are other things about her to which attention might profitably be called. Take, for instance, her Corinthian crew. Every hand aboard her is an amateur, save possibly the cook, and no one can cavil at the way she has been handled in past races, blow high or blow low. The amateur spirit is always worth cultivating, and where it is observed and fostered it should be encouraged. It is a temptation to any man who is a yacht owner to hire a skipper, provided he has the money, even if he can handle the stick of his craft himself. But more and more it is getting to be the fashion to sail your own boat, and in years to come the man who engages a "ringer" to handle his yacht for him will lay himself open to something which resembles scorn.

The chief complaint against motor boats that one hears nowadays comes from men of energetic frame of mind, who think that the boat they have purchased can be put to any use which they may devise. Now, that is just about what a man favoring the colloquial as regards phraseology might term "the limit." And this can be asserted at the outset: You can hunt forever for a motor boat or any sort of a boat adapted for all sorts of purposes and never find one. If you live on inland waters you can get a

gasolene craft perfectly adapted to all uses connected therewith, but if you ship the craft to tidewater you will find a grave and immediate need of additional fittings, to say nothing of structural strength, and these being impossible in the very nature of the boat, there is trouble. Yet that is just what a great many motor-boat novices do. They expect a boat to be as serviceable in a run down the coast as speeding over a placid river; then when the boat makes a legitimate protest, there are growls that are heard in the offices of the manufacturers. If you want a coastwise cruiser, you may obtain any number and any variety of them; the same may be said of the inland-water boat, the out-and-out racer, or the ocean racer, but do not expect to find a combination of all these qualifications in any one hull.



HAWTHORNE, A LAKE MICHIGAN 53-FOOT SCHOONER, MANNED BY AMATEURS AND ALWAYS A FACTOR IN RACES.

There were only two starters in the motor-boat race from Marblehead to Bermuda for the Gordon Bennett Cup; Ailsa Craig, winner of last year's contest, and Irene II., a new 40-foot boat, designed by E. B. Schock. Both boats experienced unusually bad weather on the trip down, and the crews underwent such hardships that, almost to a man, corinthians and professionals pronounced the game not worth the candle.

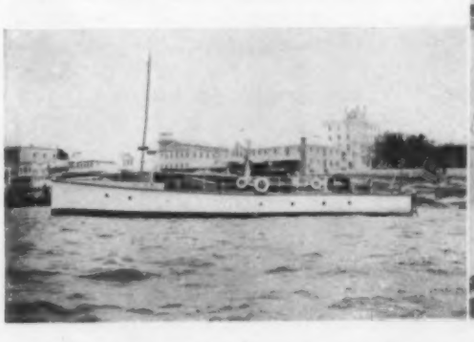
The original object of the race was to prove the sea-going ability and the reliability of the small power boat, and now that this has been done, it seems both senseless and foolhardy to continue a contest so fraught with danger, and which brings only suffering and discomfort to those taking part in it. So far, contestants have been fortunate; but one shudders at the thought of the fate in store for any whose engine should break down beyond repair—a not at all impossible occurrence. Deprived of its only means of propulsion, the powerless craft might be blown off its course into ocean wastes never frequented by vessels, and to find it would be an arduous task indeed. The danger is out of all proportion to the sport and advantages, if any, derived.

Both crews reported terrible experiences, but the Ailsa, as the more staunch and seaworthy boat, suffered least. The men on the Irene II. tell of going the entire trip without a warm meal, and with hardly an hour's uninterrupted rest, such was the tossing of their craft. The carburetor got out of order off Bermuda, so the gasolene had to be fed to the engine with a cup.

Ailsa, with Mr. Craig on board, arrived off St. David's Head at 11:47.30 on June 9, having covered the 675 knots at an average speed of 10.3 knots an hour; truly a most wonderful performance when the terrible weather conditions are taken into consideration. Still, Mr. Craig was, in a way, glad that they encountered rough water, for otherwise he could hardly have beaten his rival, a boat not specially designed for stormy weather. Irene II. crossed the line at 12:05 on June 10, thus losing her allowance of 20 hours and 30 minutes over Ailsa Craig.

The cheerful occupation of stealing horses, automobiles, bicycles and the like has long been established, but we rather imagined that the practice of stealing vessels ended with Captain Kidd and the pirates of the Spanish Main. Evidently this is not so, as the recent misfortune which has befallen two members of the City Point Yacht Club, of New Haven, will testify. About midnight on July 14 last, the 35-foot sloop Elsa, and the 26-foot Crosby catboat Bertha, were stolen from the club anchorage and since then have not been seen. With the idea that any person who may chance to come across the stolen property this summer may restore the boats to their rightful owners, I am glad to act upon the request of the City Point Club and give the following descriptions of the missing craft: Elsa, painted white, red bottom, bright decks, cabin finished inside mahogany; eight dead lights around cabin, overhanging bow and stern; steers with a tiller. Twenty-six-foot Crosby catboat, Bertha, painted white, red bottom, drab decks bright house 7 hp., jump spark, double-cylinder Palmer engine; steers with wheel.

A friend writes that Wolseley-Siddeley has been doing little since her return from the Mediterranean. The eliminating trials, he says, are likely to be serious affairs. The Daimler, with the triple screws, is having powerful motors installed, with the object of increasing her speed to 30 knots. No defender stands a chance of the cup that is not capable of 30 knots.



AILSA CRAIG, WINNER OF POWER-BOAT RACE TO BERMUDA. SHE COVERED THE 675 KNOTS AT AN AVERAGE HOURLY SPEED OF 10.3 KNOTS.

ON THE DECK OF IRENE II. IN THE RACE HER CREW WENT WITHOUT WARM MEALS FOR MORE THAN 90 HOURS.

IRENE II. IN THE RACE TO BERMUDA HER CARBURETOR GOT OUT OF ORDER, AND GASOLENE WAS FED TO HER ENGINE FROM A CUP.

START OF THE CAPE MAY RACE. NINETEEN RACERS CROSSED THE LINE, BUT ONLY TWELVE COMPLETED THE 325-MILE COURSE.

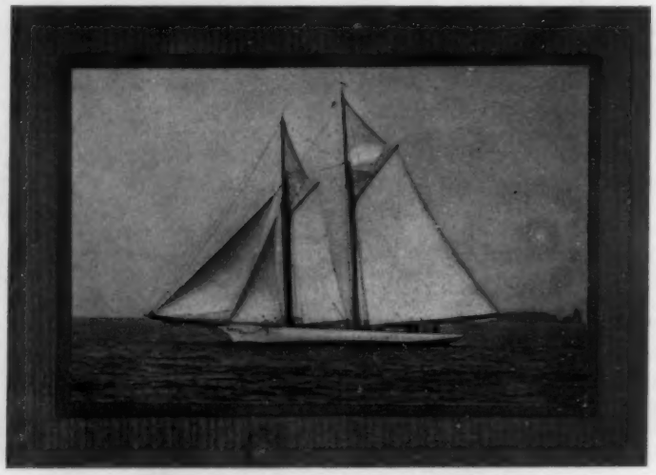
The Cape May Race

By WARREN HAPGOOD

AN example of what a skilled skipper can do with a boat was furnished by Captain Charles Barr, who held the stick of Frederic Thompson's schooner, Shamrock, in the Cape May race of the Brooklyn Yacht Club for the Lipton Cup. This schooner, twenty-one years old, and designed, in fact, by an amateur, was brought in the first of a nondescript fleet of boats which started from Gravesend Bay on the morning of July 4.

She made the journey of 325 knots in 54 hours 57 minutes and 30 seconds corrected time and, gaining the lead several hours after the start, was never headed. Gardenia might have turned the trick, for she was close aboard the schooner after passing the Northeast End Lightship off Cape May, but her sailing master evidently got out of his bearings; at any event she sailed 40 miles or more off her course and was thus put out of the race.

Gardenia was one of the first of the larger boats built under the Uniform Rule, and has at all times proved her ability as a flyer of the first class. Mimosa III., the boat which won the Manhasset Bay Challenge Cup for thirty-footers in 1904, and which is to defend the trophy against the Canada cup racer Seneca, sailed a beautiful slam-bang race from start to finish, and had she not run into a calm after passing Sandy Hook on her return trip, she would have finished within her allowance and won the cup. As it was, she made the trip in 53 hours 21 minutes 11 seconds, corrected time.



SHAMROCK, WINNER OF THE OCEAN RACE. SHE COMPLETED THE COURSE IN 54 HOURS 57 MINUTES AND 30 SECONDS.

Because of alleged errors in the measurement of Shamrock, which it is maintained should have allowed Mimosa III. more time than was required of her by the Brooklyn Yacht Club measurer, Stuyvesant Wainwright filed a protest against awarding the cup to the leading Thompson schooner.

The morning after the yacht finished, and after the Mimosa III. had come in, when the question of the yacht having been improperly measured was brought up, Mr. Thompson rather resented that there should be any doubt about the figures announced by the measurer and ordered that the Shamrock be laid up at once. It is probable that if he had thoroughly understood the situation he would have acted differently. The Shamrock had never been properly measured under the present rules, and changes had been made in the figures so often that it was only natural that there should have been any doubt as to their accuracy, especially when no reason for making the changes had been given.

Mr. Wainwright, owner of the Mimosa III., in order to satisfy himself and other yachtsmen that the Shamrock was entitled to the cup, was forced to protest, and in doing so he said that his action was taken to find out why the figures were changed, and that he did not protest against the boat as a winner. Mr. Thompson immediately had his boat put in commission and remeasurement is at this writing in progress.

Mimosa II. was awarded second prize, and will receive a Brooklyn Yacht Club trophy. Tammany, W. C. Towen's 49-foot schooner, whose corrected time was 54 hours 7 minutes and 10 seconds, received third prize.

On the trip down the coast the yachts experienced considerable weather, although it was not so bad as was reported in the daily press while the racers were on their way. Still, the winds and waves were lusty enough to cause damage, as the experience of Mopsa, of the Harlem Yacht Club, which was compelled to withdraw through leaking, will testify. Ondawa, the 33-foot sloop, lost her headsails and was also compelled to withdraw, and Vigil suffered similar injury. Keego II., of Canarsie, lost her rudder before she reached Fire Island. Sakana, Zinita and Tamerlane also withdrew because of accidents.

Butterfly, Oliver Iselin, Jr.'s 29-footer, rigged for Sound racing, found the strenuous coastwise winds too much for her, and after a series of accidents brought up hard and fast on the Brigantine Shoals. Some hours elapsed before she worked off, and then, of course, all hope of winning was gone.

Marchioness, Little Hope and the schooner Uncas were well handled and sailed beautiful races. Zuhrah, Hyperion and Lila weathered it nicely, but did not sail with sufficient speed to figure in the final accounting.

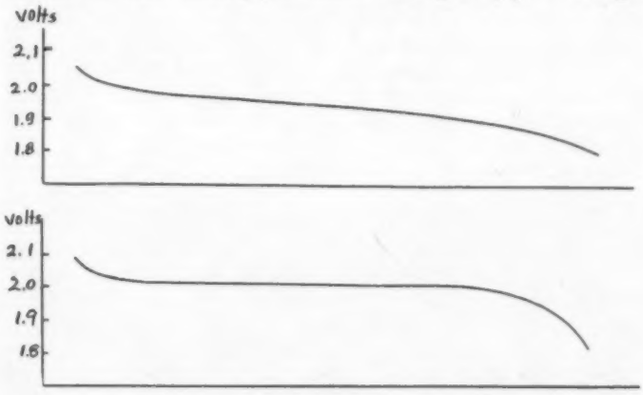
As to the weather met, there have been divers opinions. Some said that the seas their craft met were as rough as any in the Gulf Stream, and certainly the number of boats which did not finish would indicate that the weather was not calm. Perhaps the opinion of several of the skippers of the larger craft that there was plenty of weather, but not too much, may be taken as accurate.

Care of Storage Batteries

By HERBERT L. TOWLE

Diagrams by the Author

A DRY battery is tested by its amperage, i. e., the volume of current it delivers on short circuit. A storage battery is tested by its voltage, or the pressure of the electric force in the battery on open circuit. Amperage is analogous to the volume of water flowing per minute through a pipe. Voltage,



TYPICAL DISCHARGE CURVES OF STORAGE BATTERIES, SHOWING GRADUAL DROP IN VOLTAGE.

or electromotive force, as it is sometimes called, is the equivalent of the pressure per square inch in the same pipe. The volume of current flowing is determined by the voltage and the resistance of the circuit. With a given voltage, a high resistance makes a small current and a low resistance permits a large current to flow. A single dry cell has an electromotive force of 1.45 volts on open circuit, and a single storage cell tests at approximately two volts.

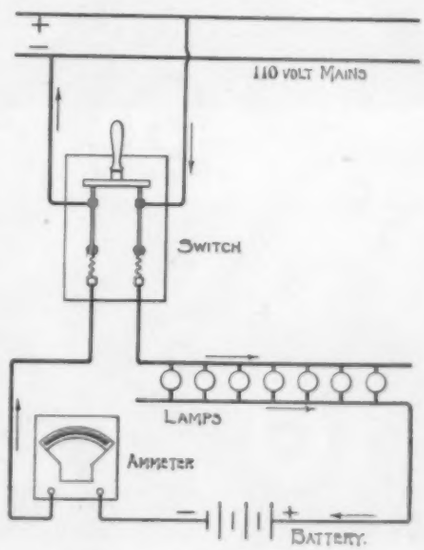
A dry battery gives its strongest current when the cells are fresh, and it weakens with the increase of internal resistance from the day it is put in service. A storage battery, on the other hand, gives a fairly constant volume of current till it is almost exhausted. The reason for this is that the internal resistance of the storage battery is very much lower than that of the dry battery, and increases more slowly on discharge; consequently it cuts almost no figure as compared with the resistance of the coil.

A storage battery properly cared for will spark the engine of a motor boat for several thousand miles without re-charging, particularly if jump-spark ignition is used. If the engine has make and break igniters, one charge of battery will not last long, but it is even more necessary to use the storage battery, because dry cells would last almost no time at all.

To use a storage battery successfully, one must understand something of its chemistry. The freshly-charged cell contains a solution of sulphuric acid of about 1.25 specific gravity, in which are immersed the positive and negative plates. The former are lead skeletons or "grids," alloyed usually with from 5 to 10 per cent. of antimony, and are covered with a hard paste of peroxide of lead, of dark reddish-brown color. This paste is the active material in which the chemical changes on charge and discharge take place. The negative plates of the freshly-charged cell are "grids" covered with spongy metallic lead, which constitutes the active material. As the battery discharges, the peroxide of lead on the positive plates is gradually converted to sulphate of lead by the addition of molecules of sulphur and oxygen from the acid, part of which is converted to water by the reaction. Similarly, the spongy metallic lead on the negative plates is converted into lead sulphate. When about half of the active material on each plate has been converted the battery is completely discharged. Practically, a cell is discharged when the voltage gets to 1.8 on open circuit, and when this point is reached the cell must immediately be recharged, since it deteriorates if allowed to stand.

In Fig. 1 are shown voltage curves of two typical storage batteries. It will be seen that when freshly charged the voltage is about 2.1 on open circuit, and that it drops quickly to two volts. As the discharge continues, the voltage remains almost constant till the cell is nearly discharged, when it drops rapidly to zero. The time to recharge it is near the beginning of this second fall in voltage. It it best to have a voltmeter always in circuit, with its terminals connected with those of the battery. This enables one to see at a glance whether or not the battery is giving its proper voltage, and avoids danger of discharging too far without realizing it.

So long as the battery is in order, the care required is limited to regular re-charging, and the subsequent testing of the acid solution with a hydrometer. If the density reads higher than 1.25, distilled water (or filtered rain water) is to be added. If the density is too low, add chemically pure sulphuric acid. The commercial variety of acid is cheaper, but is apt to contain slight impurities, which injure the battery. The height of solution may be seen through the inspection plugs. It should be about ¼ inch above the plates. If necessary, some of the solution can be taken out by means of a bulb syringe in order to add water. On charging it is best, if possible, to test the voltage of each cell separately, but so long as the total voltage indicated on open circuit reads 2.2 per cell (i. e., 4.4 for 2 cells or 6.6 for 3 cells), the individual voltage test may be omitted.



ARRANGEMENT OF LAMPS TO SUPPLY RESISTANCE IN CHARGING A STORAGE BATTERY FROM AN INCANDESCENT-LIGHT CIRCUIT.

The proper charging current for a storage battery is 1/10 of its capacity in ampere hours. That is to say, if the capacity is 80 ampere hours, the charging current should be 8 amperes. This rate of charge should continue for about 10 hours or untill the battery begins to give off gas, and the voltage across the charging terminals reads 2.5 per cell. To maintain this current, the charging voltage requires to be gradually increased to correspond to the increasing battery voltage. When the cells begin to "gas," the charging current should be cut down one-half and continued till the cells again give off gas and the

charging voltage is 2.5 per cell, when they are fully charged.

In case a quick charge is desired, the current may be one-quarter of the ampere hour capacity. At the end of four hours, or when the cells give off gas, the current is cut down to 1/10, the ampere hour capacity, and continued until gas is again freely given off. Rapid charging, especially near the end of the charge, tends to loosen the active material and should not be indulged in when it can be avoided. In no case should the temperature of the cells exceed 100° Fahrenheit when charging. If it does, reduce the rate of charge.

The user of an ignition storage battery will find the handiest method of charging to be by the use of an incandescent electric-light circuit, but this has a voltage altogether too high for the battery, unless a considerable resistance is interposed. This resistance may take the form of a bank of incandescent lights, arranged on a board, as shown in Fig. 2. The sockets of these lamps are wired up in multiple, and the quantity of current received by the battery is in proportion to the number of lamps in circuit. The size and number of lamps are determined as follows: For a 110-volt circuit, use one 32-candle power lamp for each ampere of charging current. For a 50-volt circuit, use one 32-candle power lamp for each two amperes of charging current. To cut down the current for the end of the charge, partly unscrew the requisite number of lamps in their sockets. It is of the utmost importance that the positive charging wire shall always be connected to the positive battery terminal, and it will be worth while to devise non-interchangeable connections to prevent a possibility of a mistake. Failing this, the positive charging wire should be plainly tagged or painted a distinctive color.

Loosening of active material, to which reference was made above, is sometimes due to rough handling of the battery. To avoid this, the battery is sometimes mounted on an elastic support, but more often the plates themselves are carried on soft rubber supports inside the jars. Generally, loosening of active material is due to chemical action between that material and the surface of the metal grid, and this chemical change is caused by over-rapid charge and discharge. The active material thereby loosened flakes off and is liable to bridge the space between adjacent plates, unless prevented from doing so by the use of perforated separators. These are usually wood soaked in melted paraffine, or hard rubber, the latter being better. The supports under the plates permit attached particles of active material to fall to the bottom of the cell beneath, where they can do no harm. If, by any chance, particles of active material be bridged between the plates, the cell is thereby short circuited, and quickly discharges itself. It cannot, therefore, be charged until the plates have been taken out and cleaned of the offending particles. The indication of this condition is failure to get the proper voltage when the cell is charged.

A cell discharged too far or allowed to stand too long discharged becomes "sulphated." This means that such a cell can only be restored by repeated slow charging and discharging at a rate equal to about 1/20 of the ampere hour capacity in both cases. The charge and discharge are repeated several times, the cell being disconnected for this purpose from the others in the battery, until it gradually regains its normal condition.

The best way to care for storage cells which are to be out of service for some time is to charge them thoroughly and give them a small freshening charge once a month. They should be kept in a cool place and tested occasionally, to make sure that they are not losing voltage.

Figure 1.—The Turk's Head is begun by passing a small line about the rope on which the knot is to be made. Three turns are taken.

Figure 2.—Second step. Left-hand turn of the small line is pushed under the middle one, forming a loop, and the free end of the right-hand turn is pushed up through it.

Figure 3.—Third Step. The end which has been used in the second step is taken to the left and carried up through the left loop toward the right.

Knots

By WILLIAM E. PARTRIDGE

Photographs by Edwin Levick

ONE of the most difficult knots to learn to make without assistance from an expert is the Turk's Head. It is one of the handsomest of knots when well made, and one on which the books give the learner practically no assistance. The finished knot looks like a three-stranded braid around the body of a rope. The braid has the peculiarity of not showing the ends of the strand nor of the individual members of each strand. The knot is used for a stop on a rope or for ornament.

Fig. 1 shows the first step. Three turns are taken with the small line around the main rope. The next move is to push the left-hand turn under the middle one and put the right-hand end through the loop or bight thus formed, as shown in Fig. 2. In Fig. 3 the free end is taken through to the left-hand side and pushed under what has been the left-hand turn. The left-hand turn is now pushed under the middle turn toward the right, and the free end pushed to the left through the loop thus formed, as is shown in Fig. 4. This process is continued until one has gone all the way around the rope. When all these loops have been

Figure 4.—Fourth Step. The end just used is brought to the right and tucked under the outside strand toward the left, through the loop thus formed.

Figure 5.—After making the first turn, each end is taken about the main rope parallel to itself, touching its own part.

pulled down tight it will be seen that there is an endless three-stranded braid around the rope. In commencing this knot plenty of line should be taken and work begun in the middle. After the first round is finished the free ends are pushed along outside each other so as to make each part double and then, taking the other end, each part of the braid is trebled, finally forming the knot shown in Fig. 5. When the knot has been thus completed there will be two ends, which should properly be tucked through between the strands of the larger rope. This secures the turns, so that there is no danger of the knots slipping up or down on the main rope. Usually this knot is so described in the books that no one can understand it. With the photographs given and the description any one should be able to form it without trouble. The Turk's Head differs somewhat from any other knot made by sailors, because it can be put upon a rope, a rod, or even a sash. It can be made around a cane, and when made with fine braided cord becomes a very handsome ornament. To make the knot successfully a marlin spike is almost essential.

For finishing the end of a rope the Wall Knot under some circumstances is indispensable. It is one of the knots which every sailor is supposed to know and which is useful for a variety of purposes. It prevents a rope from unlaying and it also prevents the end from running through the block. Fig. 6 shows the Wall Knot finished. It is in this case walled with the "lay." That is to say, the knot is made with the turns going in the direction of the twist of the rope, as is shown in Fig. 7, which is a skeleton Wall Knot made from braided cord so as to show turns distinctly. Each strand is taken out around one strand and put through the turn of the next one to it. When this is pulled down tightly it is of the form shown in Fig. 6. Fig. 8 is a Wall Knot made against the "lay." That is, each one of the strands is turned backward around the strand next it and up through the bight or loop of the other strand. Before the ends of a Wall Knot are finally cut off it is usually crowned. That is, each end is bent down and put under the loop of the strand next it.

(*Continued on page* 112.)

Figure 6.—Wall Knot. Made "with the lay;" that is, in the direction of the twist. When in the end of the rope it is usually crowned before the ends are cut off.

Figure 7.—Skeleton Wall Knot. Walled "with the lay." Showing the turns of the strands before the parts are drawn taut. Braided cord is used to show turn distinctly.

Figure 8.—Wall Knot. Made "against the lay;" that is, each one of the strands is turned backward around the next strand and up through loop. It is usually "crowned" before cutting off the ends.

Figure 9.—A Wall Knot "Crowned." The projecting ends are crossed above the knot, as shown in the left. They are shown drawn taut on the right. This is the quickest form of the knot, and when drawn tight makes a very secure and firm end. This crown is made before the ends of the wall knot are finally cut off. The figure to the left shows a larger knot.

Figure 10.—Double Wall and Single Crown. Made with braided strands to show the turns. After the knot has been crowned, each strand is tucked into it in such way as to follow its own part.

Figure 11.—Double Wall and Single Crown. All parts are drawn taut. This is made in a piece of manila rope, and is simply a variation of Figure 10. This is made after the knot has been crowned in the usual way.

Figure 12.—Skeleton of Double Wall and Single-Crown Knot. The strands are left open so as to show their course. It is the more open form of the knot.

Figure 13.—The Manrope Knot. The ends are either tucked into the rope below the knot, out of sight, or cut off short.

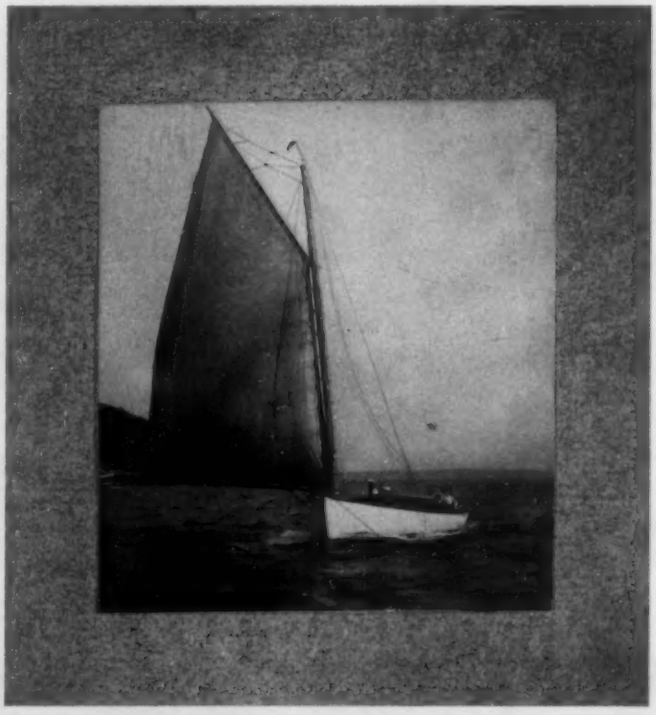
Figure 14.—Double-Wall and Double-Crown Knot. The strands passing through the knot parallel to themselves appear double.

The Fifth Annual Block Island Race of the New York Athletic Club

By OWEN ROBERTS

Photographs by the Author

AN invitation from C. D. Mower, the designer, to sail with him on his latest "Q"-class boat, the Chaperone, in the Block Island Race of the New York Athletic Club, was received with a mixture of pleasure and curiosity. It seemed strange to take part in a cruising race on a flush-deck, 22-foot out-and-out racing boat, and the invitation seemed to spell the word "discomfort" very plainly. I accepted, however, and now that the trip is over, can pronounce it a delightful one. I had not realized before all that could be accomplished with a lantern, a chafing dish and expert ability in using both. We had hot meals throughout the four days it took us to go up and back and were altogether comfortable. When the weather was fine the cockpit afforded ample facilities as stateroom, saloon, galley and chartroom, and when there was a blow or rain, oilskins kept us dry on deck and, below, we found that by sitting Turkish fashion we had plenty of headroom for cooking and studying courses. The habit is soon acquired — especially if one happens to collide a few times with the deck above— and as for the hours off watch there was a narrow pipe bunk for the sybarite to sleep upon and a pile of spare sails to accommodate his more hardy mate. True, the latter was likely to have his dreams interrupted and part of his bedding taken from him if the wind happened to shift, but—that is only a trifle that the true sailor does not mind a bit.



G. W. ROBINSON'S 20-FOOT CATBOAT FRANCES. HAVING A GENEROUS TIME ALLOWANCE, SHE WON THE BLOCK ISLAND RACE, COMPLETING THE JOURNEY OF 100 MILES IN 19 HOURS, 15 MINUTES AND 10 SECONDS.

Time was, and not many years ago, when a trip to Block Island would not have been taken by the Long Island Sound racing man except after mature consideration and elaborate preparation. The freak boats then in vogue were very unsafe in any kind of a lump and those who sailed them were all at sea, figuratively as well as literally, when it came to laying courses or picking their way after dark.

This year's Block Island race, which occurred on June 20th, brought together a fleet of thirty-one boats, ranging in size from 23 to 46 feet over all, and among them some of the latest creations in racing craft. This figure breaks every previous record for number of boats started in one and the same class and shows how greatly things have changed in recent years.

To the healthy type of boat developed by the new rules and to the popularity of cruising races we are indebted for the great improvement, and among the many events none has done more for the sport than has the Block Island Race of the New York Athletic Club. Inaugurated under most unfavorable auspices, this hundred-mile cruise has grown more and more important every year, until it has now come to be looked upon as the small boat feature of the yachting season. In 1906 twenty-four boats competed, last year the number was raised to thirty, and this year, despite its being a very bad one for yachting, thirty-one started and finished.

There are many good reasons for this steady increase. The race has become a sort of festival, in which a lot of good fellows, that know each other well and love sailing above all else, come together for an annual rejoicing. Then, too, everyone has a chance at the plate. Good handling, knowledge of prevailing conditions and ability to take advantage of opportunities are as much factors in deciding victory as actual speed of the boat, and the over-all measurement, which is the only one taken in allotting handicaps, opens possibilities to every type of boat. But the chief reason is that at the head of the New York Athletic Club's racing committee is a man who never balks at trouble or hard work when it comes to furthering the interests of his department. Mr. Harry Jackson is that man and he solicited personally every one of the entries he received, insistently and persistently. As one owner who had been interviewed by him expressed it: "It is far easier to say 'yes' at once to Harry than to try to argue with him."

To the entire committee—Messrs. Jackson, King and Fry—goes great credit for the manner in which everything was conducted. Things all went so smoothly that there was not a plaint heard.

From the racing standpoint the event can hardly be termed a success. Light and fluky breezes predominated and the unprecedented occurrence of a one-hundred mile race sailed entirely before the wind was witnessed. Spinnakers were set as the boats crossed the line and were carried to the breakwater off the western harbor of Block Island, inside which had been placed the finish line. It was a tedious run with the wind ever dead aft and so variable as to keep the boom gibing every little while. If the spinnaker was changed once, it was changed a hundred times.

The start was made at six o'clock in the afternoon and was a pretty one. The entire fleet came to the line together and so

Little Rhody II., winner of Third Prize.
Assembly of Yachts, Huckleberry Island.
Chart Room on a Flush Decker.
The First Saloon on an Open Sloop.
Small Yachts carry small dinghies.

close that many of the boats had to run their spinnakers forward to avoid having them smashed by a nearby opponent. Little Rhody II., Chaperone, Nutmeg, Marguerite and Alera went over almost abreast, just as the gun was fired, and the Little Rhody catching a free puff gained an immediate advantage and headed the fleet toward the Connecticut shore, followed closely by Nutmeg and Marguerite, while Alera, and we of Chaperone, took the other direction and edged off toward Long Island. The southern shore of the Sound is almost invariably the best in good weather in June, and the closer one gets to it, the more likely one is to strike the land zephyrs that float out at night but do not extend beyond a few hundred yards from shore. Just before sundown, Bobtail passed us, carrying a nice breath of air right under the beach, while our sails were barely full. Meanwhile the leaders, who had preferred the Connecticut course, now changed their mind and, taking in spinnakers, made over our way with ballooners set.

The saying that "anything can run before the wind" was shown to be very true. The difference between large and small, modern and antiquated, craft was hardly perceptible. Fine, powerful boats like Alera, Mint, Duchess and Tamerlane had difficulty in shaking off little bits of cockles like the Okee and the Frances, and the only models that held their own were the wide-flanked, flat ones like Nutmeg. The latter just found her weather and, gliding swiftly over the mirror-like water, was first over the line at 10.58, having covered the hundred-mile course in 17 hours and 12 minutes. To her, therefore, went the special trophy for the best elapsed time, but the first prize was won by the little catboat Frances, owned by G. W. Robinson, which completed the journey in 19 hours, 15 minutes and 10 seconds, and whose generous allowance brought down her corrected time to 14.03.10. The other awards went as follows: Second prize, Nutmeg, owned by A. C. Jones; third prize, Little Rhody II, C. E. Tillinghast; fourth prize, Grace II, J. F. Lamden; fifth prize, Jolly Tar, E. C. Duell, and special prize for boats belonging to the handicap class, Tamerlane, O. D. Bacon.

Laddie Boy, owned by E. M. Carey, would have been entitled to third prize according to actual performance, but was disqualified for using the auxiliary engine which it carried

In regard to time allowance, it was calculated at the rate of twelve minutes per foot for the entire distance on the over-all measurement, and worked out fairly well, but many were of the opinion that a percentage allowance calculated on the elapsed time of the first boat in would have been more fair all round.

On a prearranged basis, weather makes all the difference in the world. In light, leading breezes, the smaller craft and the freaks have all the advantage, while in head winds, a blow, and rough water, they would not figure at all. It would seem far more equitable to allow an elapsed time percentage, which would, in a way, suit the handicap to the conditions.

YACHTS ABOUT THE STARTING LINE.

Nutmeg—She made Best Elapsed Time.
The Fleet Under Way.
A Bunk in the Cockpit. Space is at a premium in the small racer.
Start of the Race.
Watching the Finish.

English Yachting

LONDON, July 24, 1908.

THE British season, which opened on the Thames on Saturday, May 30, promises to be the most interesting we have had since 1896. From a spectacular point of view, it will probably be vastly superior, because the star yacht of the fleet is owned by one of the most generally-popular men who ever came into the pastime. The owner is Sir Thomas Lipton, and the boat is Shamrock. As you may have heard, the new cutter is a little suggestive of Reliance. I hardly suppose Mr. Fife feels flattered at the references to this resemblance which appear in the newspapers, but he need not worry. Some of the finest ideas Mr. George Watson ever embodied were got in America. In fact, a gentleman who is widely known as a shipbuilder and as a yachtsman once complained that the reason of our failure to capture the America's Cup was that we had worked along the Rhode Island development of a yacht, and not along one of our own. All Mr. Watson's Cup boats were on this showing, with the possible exception of Thistle, American boats. Still, it stands to reason that the fast boat is the right boat, and in copying successful defenders, our people have merely exercised their skill and judgment. In any case, the new Shamrock is a yacht of which anybody may be proud, for, not only is she good looking, but her speed, particularly by the wind, is exceptional.

SIR THOMAS LIPTON'S 23-METRE (74-FOOT) RACING SLOOP SHAMROCK. SHE HAS SHOWN EXCELLENT SPEED, ESPECIALLY BY THE WIND. SHE IS SOMEWHAT SUGGESTIVE OF RELIANCE.

When I saw her peg Down Swin on Saturday, the maiden races of several other notable cutters came to mind. I recalled Ailsa, for instance, beating Britannia in the Riviera in 1895, and Meteor II making water barges of both of them, so to speak, in the Thames in 1896. I remembered also the cases of Cup challengers from Valkyrie II onward, and while I was convinced that this Shamrock was unmistakably an improvement on White Heather, it seemed to me that her superiority was less marked than the superiority of the others in similar circumstances. Of course, all of the boats I have indicated were not trying out against a boat of just the season before. Britannia was two years old when Ailsa appeared on the scene, and three years old when Meteor came along. Sir Thomas Lipton's challengers were indifferently tried, to my mind, and the trials of Valkyrie III against Ailsa and Britannia were not at all convincing. If the trials of Valkyrie II against Britannia proved anything, it was that Britannia, instead of Valkyrie II, ought to have gone to America. Summing up the whole series, it seems to me that this Shamrock ought to have been faster, as compared with White Heather, than she really was.

It is to be admitted frankly that Bevis, who handles White Heather, is just at the top of himself. He is the first of a new generation of skippers, and he has been trained against all the great men of the early nineties. There is no disparagement of Sycamore's skill in this. Sycamore is a great racing master, but he has made his reputation. Bevis, no less skilful, is making his, and is leaving nothing to chance. The conclusion is reasonable, therefore, that White Heather is being sailed for all she is worth. Probably this has not always been the case, and the possibility is to be noted in considering the comparatively unconvincing superiority of the newer Fairlie boat.

With the exception of the three miles or so from the Cork Light to the finish Saturday's race was all close by the wind. Shamrock had a bad start, coming late to the line and moving slowly against the flood tide, while her three rivals to windward and in slacker water made excellent progress. White Heather, best placed of the lot, was first away; Brynhild coming next, with Nyria some distance astern, pointing for her weather quarter. With the evident intention of squeezing through to windward, between Brynhild and the edge of the Shoebury Sands, Sycamore kept pinching Shamrock. The genial McCallum had no use for him there, however, and sailing extremely close to the wind left Shamrock no room to pass. The result was that both boats lost a lot to the others, who opened out nice leads. For a matter of fifteen miles this went on until in the vicinity of the Mouse, in slacker water and more wind, Shamrock sailed fuller and went easily through the lee of her retarder. It was tack and tack all the way now to the West Rocks, and we soon had some of the new boat's quality. Nyria gave her a lot of trouble, weather bowing repeatedly to some purpose; but in time the superiority of the new cutter was asserted and she went into second place.

Then a strange thing happened. After a long board to the southward, which may have been overdone, White Heather came in on port tack with the evident intention of staying on Shamrock's weather bow. She could not cross, however, and being on the wrong tack had to stay, with Shamrock screwing out wonderfully on her weather quarter. Worse succeeded this, for the leader, coming in again on the port tack, had to go astern of Nyria. So inside a brief ten minutes White Heather had dropped from a commanding lead into third place. She recovered her position as against Nyria, but on a close-hauled reach to the Cork, Shamrock left her as if she were standing still, and after a brief run with spinnaker won first prize.

The victory was, to some extent, discounted by the fact that White Heather had an old mainsail with an extra cloth in. Fearing a blow Bevis had taken off the new sail, and in bending on the old one got it wet. That was held to account, in some measure, for the yacht's deadness, particularly in the later stages of the race.

Why the wet sail should only have operated disadvantageously part of the time is not easy to see. But that it made a deal of difference was clearly evident on Monday at Harwich when, with the new mainsail, White Heather sailed a very different boat. Shamrock still seemed to be the faster, though her superiority was not nearly so convincing as it had been on the first day. In point of fact on Monday's form White Heather is quite clearly fast enough to stop the newer boat. To some extent, Shamrock outpoints White Heather and also—apparently—outfoots her. But the freer the boats go the advantage disappears. In fact, we seem to be in for as fine and as exciting racing as we have ever seen in these waters.

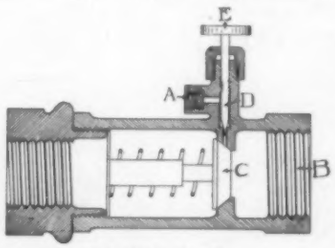
The alterations to White Heather, which consisted chiefly of increasing the sail area and altering the lead correspondingly, seem to have been highly successful. The changes which were expected to work an improvement in Brynhild have not done so, as she is—by comparison with the others at any rate—slower than she was last year. None of the tenderness of 1907 remains, but the stiffness is evidently costing her something in speed. Nyria, on the other hand, of which experts always thought a great deal, is vastly improved, and with an allowance of seven seconds a mile, as a yacht built under the old rule she seems to be assured of a crop of prizes.

ROBERT MAC INTYRE.

Freaks and Fancies of Motor Boats and Engines—Part II.

By HAROLD WHITING SLAUSON

INASMUCH as a carburetor will regulate itself, within certain limits, to varying pressures in the gasolene tank, the engine can be run till nearly the last drop of fuel is exhausted. With the ordinary mixing valve, irregular firing of the motor will often indicate a low level of fuel in the tank, and by readjusting the needle valve, the engine may be run some distance after giving this warning that the gasolene is about exhausted. Of course there are certain advantages in being able to run a motor boat as well on a pint as on a gallon of gasolene, but this ability of the carburetor to suck dry the last drop of fuel was the cause of a five hours' "marooning" of a friend of the writer on a barren island in the middle of a large river. The engine suddenly stopped, and it was found that the last drop of fuel had been used. As the wind was blowing very hard down stream, there appeared to be rather a good chance of an unexpected and undesired trip, but by fastening down the curtains on one side of the boat and using these as a sail, the course of the launch was deflected sufficiently to allow a landing to be made at the nearby desolate island. When land was reached it was found that there was no anchor on board which could be used to keep the propeller from the rocky shore, but as the boat had been "to market" and in consequence had on board a five-gallon demijohn of water, this was tied to the stern line and thrown overboard to take the place of the missing anchor. It served the purpose well, and at the end of a half day, when another boat came to the rescue with some of the precious fuel, the boat had not been injured in the least by contact with the rocks. The irony of fate exhibited itself when the gasolene supply boat passed close by the island, but out of earshot, owing to the strong wind which was blowing at the time, and this modern Robinson Crusoe was forced to wait with signal of distress in one hand and megaphone in the other till a boat passed close enough to be made aware of his plight.



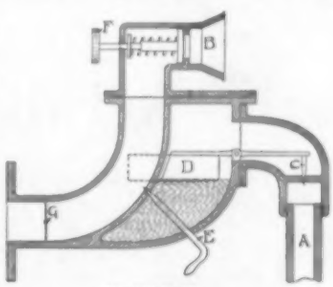
GENERATOR VALVE.

A, Gasolene Inlet. D, Gasolene Valve. E, Valve Stem Regulator. B, Air Inlet. C, Air Valve.

Suction from engine opens air valve and draws in gasolene at same time. When spring on air valve is the right tension, a good mixture may be obtained, but the spring usually gets too hard or too soft, with the result that either too much or too little air is obtained.

Anyone who has steered a motor boat in unfamiliar waters will realize with how much greater confidence he can handle the wheel if he knows that his propeller is well protected from an intruding bottom by a substantial skeg. With no protection of this kind, however, the task of the steersman becomes unenviable, and in places where the water shallows to a depth of six or eight feet and the bottom can be seen, his heart will rise in his mouth as the weeds and rocks below rise toward the bottom of the boat, and he awaits the fatal click and subsequent speeding up of the motor which announces that the propeller has struck a rock and has either bent or lost a "bucket." While a skeg will save many an annoying accident, it should not cause the pilot to become careless and assume that a motor boat is as good a land vehicle as it is a water craft, and the fact that too much reliance is liable to be placed on this form of protection is one of the greatest objections to its use. Moreover, this heavy piece of iron extending from the keel to the rudder will act as a drag and will somewhat reduce the speed of the boat, and will also prevent its turning in as short a space as would otherwise be the case. In other words, it will act more or less as does a center board on a sailing yacht.

In small, light boats, however, which are used for all kinds of water, a skeg will often save considerable time by enabling the boat to run through a short-cut, where, although the water may not be deep enough, the small bumps and jars encountered in paddling the craft over the bar or reef will not injure the wheel. Near one of the summer resorts in New York State is a small canal which was dug as a short-cut to a neighboring town, and through which many a small motor boat is wont to scrape and bump its way to the deeper water on the other side of the neck of land which was severed from the main shore by this little opening. A man in a small motor boat, while endeavoring to negotiate this canal one dark night, ran his craft on one of the rocks, and the more he pushed and pried in his endeavor to dislodge her, the higher and drier did she climb. Finally, as a last resort, the lonely mariner was compelled to roll up his trousers, remove his shoes, and step knee-deep into the ice-cold water. As the boat was light and the man was strong, he finally succeeded in lifting the stern a sufficient distance out of the water to enable the boat to be moved back far enough to float, and he then proceeded on his way—not, however, through the canal. A thorough examination the next day revealed the fact that neither the hull, rudder, nor wheel had been injured in the least, and even the skeg itself did not show any evidences of the strain to which it had been subjected the night before. It might be mentioned that it is this same craft which holds the record for the high hurdles for motor boats in that part of the State, and the sight of the little 16-footer coming at a lively clip down stream, striking a submerged rock with such force that her stern was thrown a foot in the air, and then proceeding on her way on the other side of the obstruction with as little concern as if nothing had happened, attests to the strength which a skeg and hull can have when properly designed.

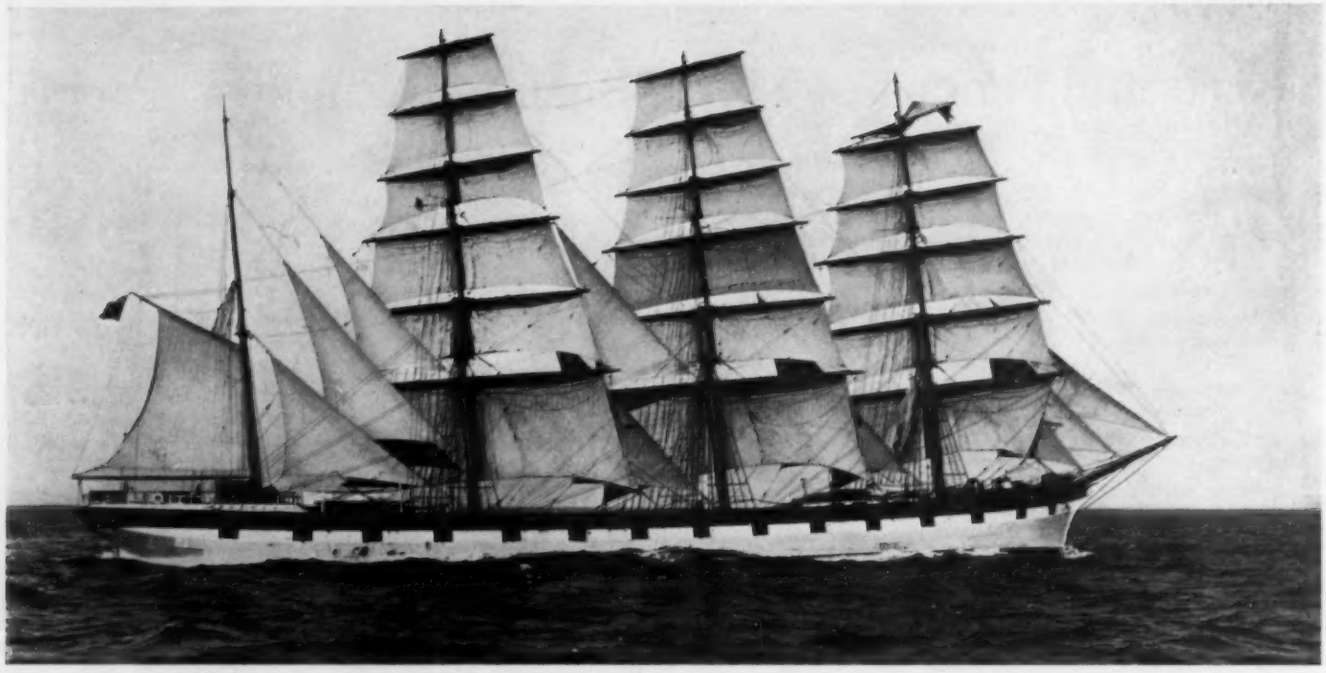


CARBURETOR.

A, Gasolene Inlet. C, Needle Valve. D, Float regulating amount of gasolene. E, Needle Valve regulating amount of gasolene to be mixed with air. B, Air Inlet. F, Air Valve with regulator to increase or decrease amount of air. G, Butterfly Valve to regulate amount of mixture.

With a float feed carburetor the gasolene fills the reservoir until it lifts the float, closing the Needle Valve. As the gasolene is used up, the float drops, opening the valve automatically, regulating the gasolene supply. Needle Valve E regulates the amount of gasolene to be mixed with air, the same as in the Generator Valve. The Air Inlet is also regulated after Needle Valve E has been set.

With all the motor-boat appliances now on the market, there is nothing which will prevent entirely the accumulation of weeds on the propeller blades, and in this case a skeg is probably of little help. In many bays, rivers, and streams, these weeds will lie in a tangled mass on the bottom, requiring but the disturbance of the water by the propeller to straighten them out and cause them to reach up their arms to grasp the revolving blades of the wheel. Several cases have been known where a boat accumulated such a quantity of these weeds that a ball was formed, entirely surrounding the propeller, and as the pitch of the blades was rendered useless, the engine continued running while the boat stood perfectly still. It was the same as though the blades had been moved to the neutral position, and consequently the motor had no effect toward maving the boat in either direction.



"THIS AFTERNOON A GREAT NEWCASTLE COAL CARRIER, THE AFGHANISTAN, WENT LUMBERING BY ON THE STARBOARD TACK."

Around the Horn—The Log of a Second Mate

By T. JENKINS HAINS

CHAPTER VI.—Continued.

DECEMBER 6. To-day is Sunday, and it has dawned a fine day; the wind has gone down, and the ship rolls so horribly in the seaway that the topsails can no longer steady her with a light breeze. The pumps are sounded and the water in the bilge pumped out. Fortunately, there is not much of it, and in an hour the ship has no more water in her than before the gale. This is a good sign, for if there is one pleasant thing about being at sea it is the feeling of satisfaction in having a tight ship to live in. This afternoon a great Newcastle coal-carrier—the Afghanistan—went lumbering by on the starboard tack. We were almost near enough to carry on conversation from deck to deck.

December 7. The ship has been sailing steadily on her course all night and has made over a degree of southing. It is a great relief to see her again under skysails, bowling along merrily, as if the voyage would be over in a couple of weeks. We are fifty-one days out and have not passed the fortieth parallel, south latitude, consequently everyone is in a bad humor, and poor, weak human nature is giving away to petty quarrels and fierce cursing among the men, and still fiercer cursing among the mates. The third mate appears in his true colors. When he left New York he wore a huge, drooping black moustache, and had a rakish, piratical look. Now all is changed; the piratical moustache is no more, and in its place is a thick, bristly red one, which merges into the great bushy beard of that color that almost completely covers the ruddy face. It is astonishing what a change will take place in a man's appearance when exposed to all kinds of weather going from 40 degrees north latitude to 40 degrees south latitude on a voyage of this description. It is doubtful if even the lynx-eyed gentry who are seeking the society of the third mate would recognize the bearded ruffian as he stands on the break of the poop and gives his orders in a way that is, in every respect, befitting the dignity of his high position.

The rest of the crew are hardly less changed, for where there was a smooth face before it is now a mass of tangled hair and dirt. "They are tangled and dirty and browsy and frowsy, and a rhyme that good etiquette never allows ye." It is a case of "water, water everywhere, and not a drop to wash in," for it must be remembered that water is not carried over fifteen thousand miles of watery waste for bathing purposes. Men of very cleanly habits would, perhaps, take off their clothes and wash during a storm, preferring to drown clean if the ship foundered; but sailors, as a rule, wait until the storm is over, being quite contented to die dirty if the ship is lost, and after she is safe out of it she is out of the rain also and it is too late to wash.

To-day the captain complained of the smell of the albatross skin that was lying stretched on a frame on the top of the forward house, and he cursed the quartermaster, who had helped me to skin it, for having helped me in any way whatever. He ended by threatening to "keel-haul" him if he came aft to the wheel again with the objectionable odor with him.

The carpenter has been busy repairing the damage done by the sea, that tore out the side of the forward house, and collecting the scattered beef that has been floating about the fore-peak, for about a dozen barrels got adrift and were smashed to pieces. This had no bad effect on the beef, however, for to hurt it would have been a rather hard undertaking, as it had made the voyage once before and was now so thoroughly seasoned that it took repeated boilings to get it into a proper condition for making hash.

All the afternoon we were plunging along at the rate of 11 knots an hour, and at night we still kept it up with the royals set. About midnight I was awakened by the mate calling down the companionway to the captain, and heard him say something about taking in the top-gallant sails. I lay half asleep for awhile and heard them taking in the main top-gallant sail and getting everything off the mizzen mast except the lower storm topsail. Gradually the roar overhead increased, and I turned out to dress and get ready for the call to go on deck. As I did so I heard the cap-

tain calling and the mate swearing away at a great rate. The ship was tearing along before a gale and the canvas was being taken in as fast as all hands could do it. It was so dark that nothing was visible but the broad sheets of foam on both sides of the ship as she went through the gleaming phosphorus that looked like a sea of fire. Finally I made out the mainsail, clewed up, and the men laying out on the yard, calling to each other in the blackness. It was so thick that one could not see the foremast from the poop or tell what sails were on it. Suddenly lightning began to flash sharply on the starboard bow, and we knew that the "Pompero" was coming down on us. The captain called to me to look aloft, and there, on each truck, was a ball of fire. A moment afterwards and my eyeballs seemed as though burned out of my head, and I staggered up against the side of the wheel-house completely blinded; then a report, as though a heavy gun had been fired on deck, sounded on my dazed senses, and, with a deafening roar, the "Pompero" struck the ship.

"Hard up the wheel! Hard up, for God's sake!" roared the captain in a voice that ended in a screech. I grabbed the spokes, but it was already hard up, and the vessel, owing to her great momentum, was paying off nobly. "Let go the main top halyards!" and the yard came down by the run, with the sail slatting away at a rate that threatened to take the mast out of her. In a moment it had parted from the bolt-ropes and was flying, like a lost soul, into the black void to leeward. A reefed foresail and a lower topsail were still on her forward, and with these the ship was soon headed before the gale. It was a close call; but she was all right now, and flew along at a rate that made the taffrail log fairly hum as it registered mile after mile of darkness traversed.

All the time the ship ran before it the blackness was lit up every few seconds by the most blinding flashes of lightning, accompanied by deafening thunder. There is nothing that will compare to the vividness of that lightning except, perhaps, a strong magnesium light lit suddenly in the dark within a foot of the nose.

In about an hour this squall died out to a gentle breeze. Before the "Pompero" struck the ship she was running south-southwest, with the wind astern. The squall came from the southwest by south, almost directly opposite to the direction that the wind had been blowing, and we were just able to wear ship in time to prevent being dismasted, which would have been about equal to being lost in this part of the world.

I turned in again, but had hardly gotten asleep before the roar overhead told me that the wind was blowing again. The mate called down to the captain, who had lain down on the cabin lounge in his oilskins, and he went on deck and hove the ship to. After sleeping fitfully for a little longer my watch was called, and I went on deck again. We had wore ship, to keep from driving too far to the eastward, and were now hove-to on the port tack under the lower main topsail, with the sheet slacked off, to keep it from carrying away. About this time the gasket on the bunt of the mainsail, which had not been made fast properly in the darkness, started, and I called out for some one to go aloft and make it fast. Bill, the quartermaster who was shanghaied, sprang into the main rigging and was aloft in a few moments. He had just stepped out on the foot-rope on the yard when it parted suddenly, and down he came onto the deck with a sickening thud. Several men rushed to him and, at the captain's directions, carried him into the forward cabin. Here he was seated in a chair under the swinging lantern, and for a few moments seemed in a dazed condition. In another moment the blood began to ooze out of the corners of his mouth and his head fell forward on his chest; he murmured something inarticulate, and it was all over. They carried him forward into the forecastle and laid him in his bunk. Just a little while before twenty men had been on that foot-rope, and had it proved as treacherous then it probably would have decimated the crew.

At gray dawn the clouds showed signs of breaking up a little, and the glass went hopefully upward. Vain hope! Squall after squall followed in quick succession, and all day long the ship plunged and switched into the sea. One sea struck her amidships and came near tearing the cabin off. It came across the deck eight feet deep, and the largest part of it landed overboard to leeward. Another struck her on the bluff of the bows and shot up straight, like a waterspout, as high as the fore top-gallant yard. Towards night the wind moderated, so that reefed topsails and reefed courses were put on her, and Bill, the quartermaster, after being sewn up in canvas by the sailmaker, was dropped into his grave in the South Atlantic Ocean, six hundred miles due east from the River Plate's mouth.

December 9. To-day it is still blowing a stiff gale; but moderated sufficiently at noon to enable the ship to carry a main top-gallant sail, which drove her into the heavy sea at such a rate that it strained everything, while she threw tons of water over the top-gallant forecastle as she drove along under the great pressure. However, she made about one degree of southing before it began to bank up again to windward and forced us to take the sail in.

December 10. Toward morning it became so calm that, except for the tremendous swell, the sea is now as smooth as a pond. The "Pompero" is over.

The wind known by this name has its origin on the pampas of the Argentine Republic, and during the summer months blows with great violence out of the mouth of the River Plate. In fact, it blows with as much strength hundreds of miles off the coast as it does near the shore in the mouth of the river, and is always accompanied by the most terrific thunder and lightning. It is a most dangerous wind to the Plate fleet, and often keeps vessels bound into the river for weeks hove-to under short canvas before they can get a slant of wind and make a harbor.

This morning the captain and I amused ourselves by shooting "blackfish," a small species of the whale family, and, although we hit several with heavy Winchester rifle bullets, they did not seem to be very badly hurt, and simply splashed about a little. One, coming up within a few feet of the stern, received a bullet in the head, which he acknowledged by a swish of the tail. In the afternoon a large shark was noticed coming slowly up the ship's wake. The steward got out a trolling line, baited with a piece of salt pork, and the shark soon began nosing the meat. In a moment he swallowed the hook with about a half fathom of line. As he brought the top of his head out of the water while swallowing the bait—for he did not turn on his side but slightly—I reached over the stern and shot him through the head with a Winchester rifle. This awakened him to his danger, and, with a great splash, he made off as fast as he could, carrying a large part of the steward's trolling line with him.

December 11. We had a slant of wind yesterday evening, and have been standing on our course ever since. The 40th parallel, south latitude, was crossed to-day on the 48th meridian west of Greenwich. A sailor called "Frenchy," probably on account of his nationality, who was badly injured by being struck by a sea and washed into the lee scuppers, is able to walk about again. This is good, for his hip and leg, where he had struck against the lee bulwarks, were so swollen night before last—the time of the accident—that it was supposed his leg was broken. The captain, whose temper is sorely tried by the bad weather and consequent loss of sleep, narrowly missed braining a sailor with a heavy belaying pin this morning.

"This morning we made out a whale being chased by a thresher shark of huge size. The whale headed for the ship and broached to every few minutes, followed by the shark, who threw himself from eight to ten feet clear of the sea to fall into the smother of foam about the whale. The shark seemed to be about 15 feet in length, and showed great activity.

(To be Continued.)

THE LIMIT MAKING 24 MILES AN HOUR. THE FI

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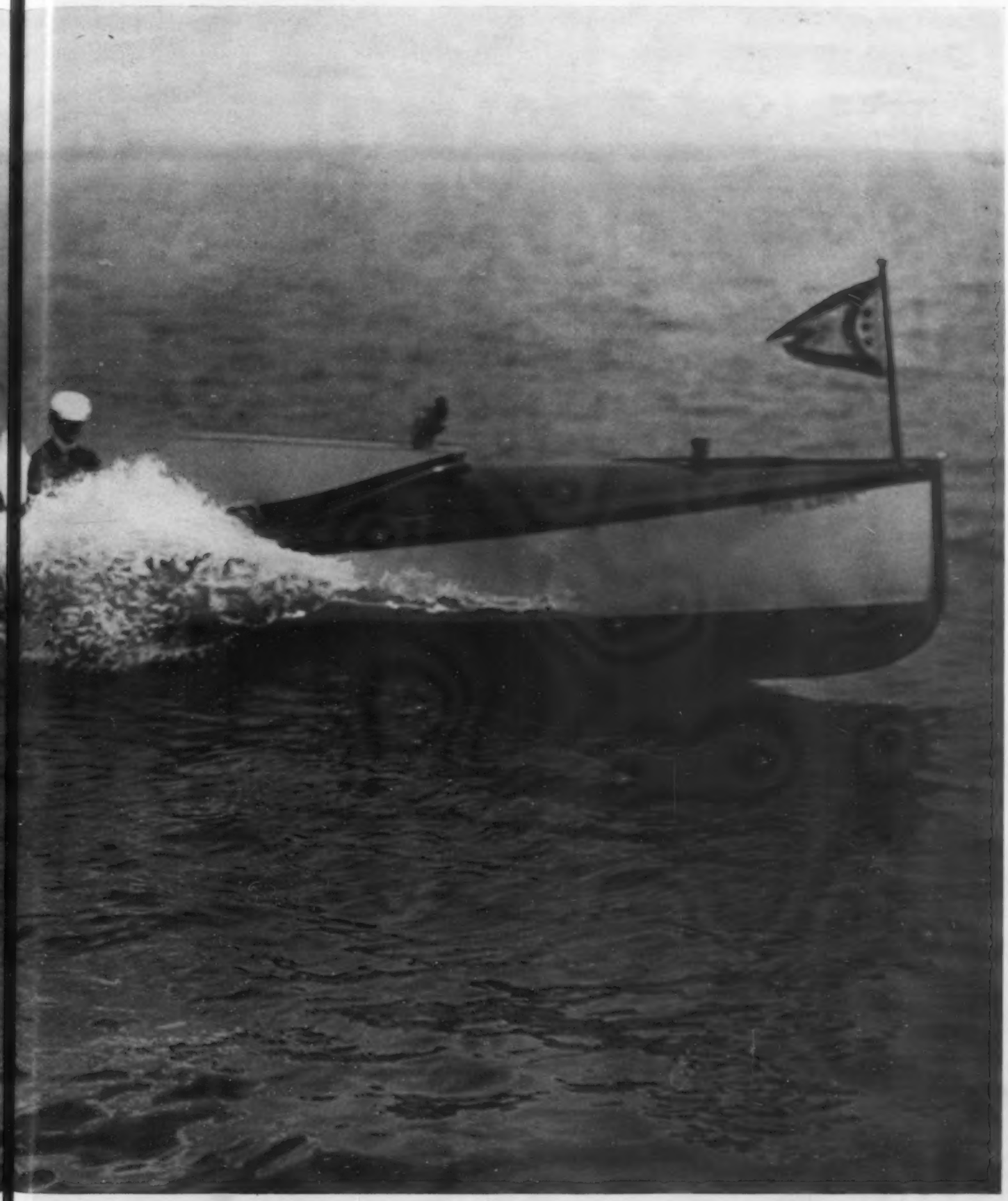

E EASTERN RACING BOATS IN COMMISSION THIS SEASON.

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N BINDING

BOW, BROADSIDE AND COCKPIT VIEWS OF A 19-FOOT CANVAS-COVERED POWER CANOE. SHE HAS 36 INCHES BEAM AND DRAWS 12 INCHES OF WATER WITH A LOAD OF 750 POUNDS ABOARD. HER WEIGHT, WITH A 3½-HP. MOTOR, IS 475 POUNDS, AND SHE IS SAID TO ATTAIN A SPEED OF 10 MILES PER HOUR. MOTOR IS INSTALLED AFT OF MIDSHIP SECTION AND EXHAUST ABOVE WATER ON PORT SIDE NEAR STERN. SHE HAS A SHAFTLOG, AND WHEEL AND RUDDER ARE PROTECTED BY A SKEG REACHING FROM IN FRONT OF SHAFTLOG TO WELL AFT.

Motor Canoes

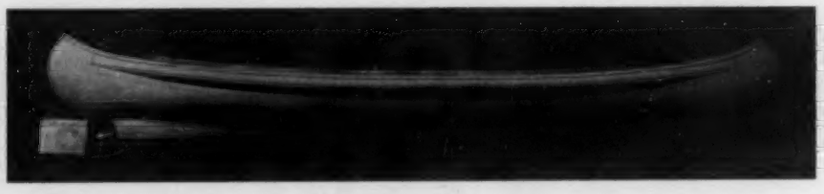
A STUDY OF THE DEVELOPMENT AND FUTURE OF THIS TYPE OF CRAFT

By E. T. KEYSER

Illustrations by Courtesy of Carleton Canoe Company, Old Town Canoe Company and W. T. Bintliff

THE craft which has for years been considered as devoted to the summer girl and the lazy life has undergone a spirit of hustle, all due to the fact that within the past season or two some experimenters have discovered that a motor installed in the canoe is a practical proposition. On second thought it is scarcely correct to say that the motor canoe is a craft of but two seasons' existence. About ten years ago a builder constructed a 17-foot decked canoe after a model very similar to one of his sailing cruisers and equipped her with a gasolene engine of about ¾ hp. In the state of development of the internal combustion motor of those days there was not very much favor found in the craft, and her maker, I believe, offered her for sale at a bargain price before she was even dropped into the water. The difficulties under which he worked can be best understood by the fact that the engine and accessories, including shaft and propeller, weighed about 150 pounds, while to-day it is possible to secure a 2½-hp. engine weighing but 30 pounds, and with a propeller shaft, stuffing-box, muffler and entire equipment, it will tip the scale at from 60 to 72 pounds.

The general tendency of to-day seems to be to take for the hull an Indian model canvas-covered canoe, with or without sponsons, instal therein a 1½ to 3-hp. single cylinder 2-cycle engine direct-connected to an 11 or 12-inch propeller wheel. In each of the different craft now on the market a log, projecting through the keel, carries the shaft. In but one make of craft a strut is used from which to hang the shaft, and the strut in this case is used in connection with the skeg.

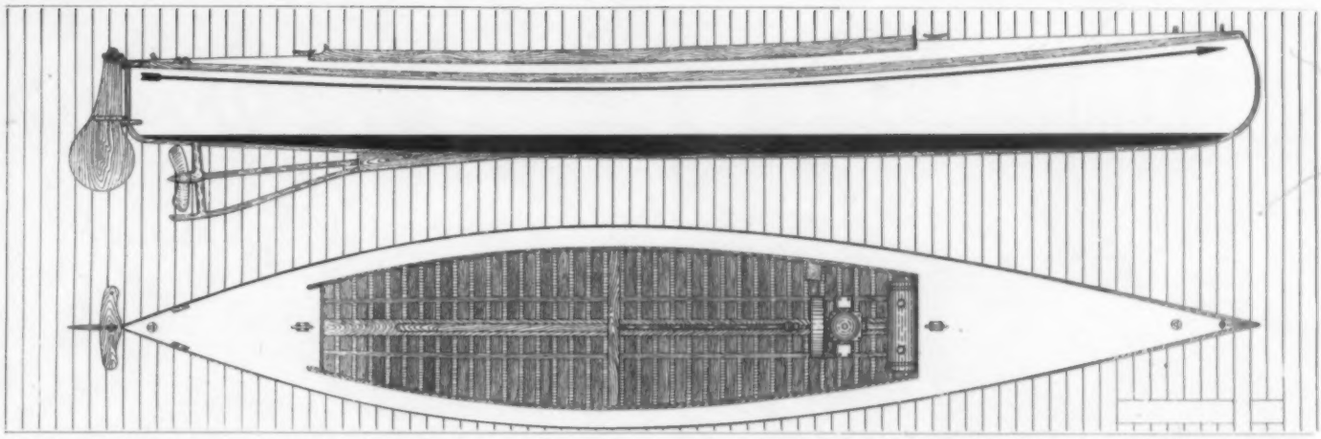


AN 18-FOOT POWER CANOE WITH WELL-DEFINED SPONSON OR AIR CHAMBER. HER DIMENSIONS ARE: LENGTH, 18 FEET; BEAM, OVER ALL, 44 INCHES; DRAFT, 16 INCHES. WITH A 1½-HP. MOTOR SHE MAKES FROM 6 TO 7½ MILES PER HOUR.

The size of these boats runs from 18 to 20 feet in length, the draft is governed by diameter of propeller wheels, and the rake of the shaft varies according to the position in which the motor is installed in the boat. The amount of draft has more to do with the utility of the motor canoe as a serviceable craft than any other one feature, and anything which can be done to decrease this will increase its circle of usage. It is just as well to look matters squarely in the face and realize that the motor canoe is an ideal craft for certain purposes, and for other purposes absolutely and totally inadequate. For moderate-sized streams and lakes, where the water is usually calm, and at least from two to three feet in depth, and where the owner of the craft has a dock or float from which to start, and at which to end his expedition, the motor canoe is destined to become a delightful little craft. For a trip along a canal I do not know a better form of launch, for, in proportion to its fuel consumption, its speed is high, going at an easy traveling rate without fuss. This matter of speed, however, is one wherein the boat builder and the skipper himself seems, at present, bound to run into the error of extremes.

In the first place a canoe is not a racing craft, at least the paddling cruiser is not, and these are the types of hull that are now being fitted with motors. It is a good, well-seasoned cruising paddler who will keep up for six hours a day a steady speed of 3½ miles per hour. As a matter of fact the average canoe of the Indian model is so constructed that you cannot, without undue exertion, and that for a limited time only, paddle her over 3¾ miles per hour. Now, just because you have equipped her with a motor, do not try to get more than seven or eight, or, as I have seen some manufacturers advertise, 10 miles an hour out of a boat whose hull was never designed, even at extreme speeds, to slip along at over 4 miles.

Just realize that if you could take a pair of blades and get along at 4 miles an hour for six hours a day, you would be doing wonders; and if by adding a motor of 1½ or 2½ hp. you can make 5 or 6 miles, you are without exertion increasing your speed by 1½ or 2½ miles per hour over anything you could possibly achieve in paddling. Then let it go at that. Go along nicely, smoothly and moderately, and on an even keel, and with comfort. Do not try to achieve a speed that is going to curl up a bow wave, drag your stern under and increase your draft just sufficiently to bump you every time you come across an obstruction over which at a lower speed you could easily pass. You are not in a racing boat, and you are not racing, and if you *are* racing in a motor canoe you are doing something you have no right to attempt. Put her at high speed and she is bound to throw spray forward and squat aft. She has



not any stern bearings, and if she did have she would not be a canoe. In a motor canoe you have something that is taking you along faster than the average launch of equal over-all length, equipped with anything like the same power, and that is all you have any right to expect.

As regards the element of safety, there are two methods by which it is conserved. One consists of air tanks under decks forward and aft; the second, sponsons or air chambers running the length of the craft on the outside of the planking and extending just far enough down as not to interfere with the water-line beam.

COCKPIT VIEW OF AN 18-FOOT BY 45-INCH MOTOR CANOE WITH 13 INCHES DRAFT. SHE IS EQUIPPED WITH A 2½ TO 3-HP. MOTOR AND WEIGHS 275 POUNDS, HAS A CARRYING CAPACITY OF 700 POUNDS, AND SEATING CAPACITY OF FOUR PERSONS.

In other words, the sponsons do not touch the water line until needed, and that is when the craft becomes overturned, or her cockpit so full of water that she gets down when the support of these come into play. The general tendency to put the engine as far back in the stern of the canoe as possible is one that will probably die out. The logical place for the skipper of a canoe is as far aft as he can get, especially if there is spray or rough weather. The further aft he is the dryer and more comfortable he will be. For this reason it would be a good plan if motor-canoe builders would place their engine either in the center, or, if possible, under a hood at the forward end of the cockpit. This would tend to balance the weight of the skipper and, moreover, so reduce the rake of the shaft that the draft of the canoe at the stern would only be the amount necessary to give proper submergence to the propeller. Of course this means that the fly-wheel should be removed from its ordinary position and placed on the shaft between it and the engine so as to be readily accessible to the engineer. The average motor, as supplied for canoes to-day, gives its horse power at from 550 to 600 revolutions per minute, and at this speed will develop from 2½ to 3 hp., turning a 12-inch propeller. These, of course, are the smallest and lightest marine engines to be obtained at present, but the logical outcome of the effort to produce a motor canoe most satisfactorily will undoubtedly cause a demand for extremely light weight, 2-cycle motors of the three-port type, which will develop from 1½ to 2 hp. at a speed of 600 to 900 revolutions per minute. Such a motor, turning an 8, or even a 6-inch propeller of considerable pitch could be used to advantage in a craft of the lightness and with the lines and bearing of the average canoe. A speed and pitch which would mean a racing propeller in a craft large and heavy enough to furnish any degree of inertia could be used to advantage and give results in the easily propelled and, what's more to the point, easily started craft of the canoe model.

In theory the ideal power canoe would be a craft of 18 feet in length, with a 12-foot cockpit, decks 3 feet forward and aft, side decking of 2 inches and a 2-inch combing, oval at each end. Under the forward and aft decks should be water-tight air tanks sufficient to float the craft when entirely filled with water, and in addition to keep the heads of a crew of three above water. Her engine, developing 2 to 2½ hp. at 600 revolutions, should be under a combing hatch at the forward end of the cockpit. Her propeller, three-bladed for steadiness, should have a pitch of 27 inches and be 6 inches in diameter, with a submergence of 2½ inches, which would give the boat about 9 inches of draft. The fly-wheel should be on the shaft just aft of the engine. Such a craft should easily go at 7½ miles an hour under ordinary cruising speed, or could make as high as 9 if forced. She would not be a craft to use on a trip on the upper Delaware. She would be too tender and throw too much spray for use on Long Island Sound, or on the Hudson River when the wind was against the tide. But for quiet water or on a small Adirondack lake, a canal trip or a small river she would be an ideal craft.

She won't have the accommodation of a regular launch of the same over-all length, but she may be kept under cover, in a boat house when not in use, and at the end of the season may be taken home, stored in the cellar and "puttered" over all winter.

BROADSIDE VIEW 18-FOOTER. A 12-INCH TWO-BLADED PROPELLER WHEEL SETS CLOSE UP TO A HEAVY KEEL-SHAFT LOG, FROM WHICH A BAR OF BRASS WITHOUT END CONNECTION PROJECTS, ACTING AS GUARD TO THE PROPELLER WHEEL.

Plans at top of page represent suggested 17-foot by 36-inch power canoe with 2-hp. single-cylinder motor and fuel tank at forward end of cockpit, and fly-wheel aft of engine. The straight stern keeps rudder close to hull. Exhaust runs under side decking and out near stern. Entire after end of cockpit is free and clear.

Some Practical Advice on Ignition and Fuel

KEEP a sharp watch on your batteries by testing them with an ammeter. When any cell falls down below five amperes don't bother with it, don't stop to coddle it, throw it away and replace it with a new one.

Don't run to the extreme of fancying that because a set of six cells are good a battery of eight cells is much better.

If your engine works best at six volts it is needless to increase the current supply. As a matter of fact, if your ignition apparatus works best with six cells, an eight-cell battery will simply wear itself out about 25 per cent. quicker.

It is an extremely good plan to have with you at all times a couple of extra cells to replace those that are worn out; but don't make the mistake of having them connected until you want to use them.

Where a generating equipment is not carried it is true economy in the long run to fit your boat with two sets of batteries. A battery gets tired, just as a razor does, and by using them in alternation you give each of them a chance to rest and recuperate, thereby prolonging the life of both. Don't be led by the beautiful simplicity of its appearance to instal in your boat a combination bilge and outboard water cooling pump. If you want your boat pumped out by power secure one of the many forms of auxiliary bilge pumps, but don't add to the chances of stuffing up your water jacket with any more foreign substance than you are actually obliged to bring in from the water outside the boat. Better use an ordinary hand bilge pump and keep her dry by main force, for human nature is weak, especially when there is any apparently unnecessary work to be accomplished, and if your circulating pump does have a bilge attachment the chances are that you will use it.

Strain your gasolene when you empty it into the tank and then exercise a final precaution by putting on your supply pipe strainer and water trap with the cut-off valve between the trap and the tank and close to the trap. These precautions will reduce that part of your fuel troubles, caused by dirt and watering stock, to a minimum.

Awnings for the Power Boat

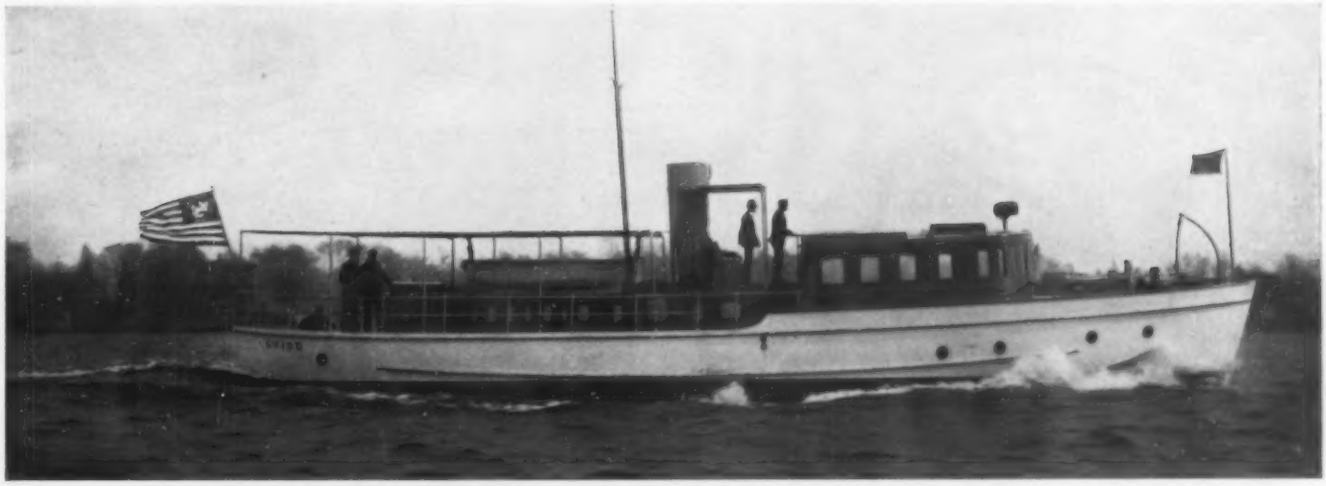
Don't put a standing roof on a 16-foot launch unless you are the owner of an extra good life insurance policy on which you desire to realize more than its borrowing capacity. The fact that no builder equips a small launch with a standing roof ought to be a hint to the boat owner who wants all the comforts of a floating roof garden on a craft a little larger than a launch tender. A canvas canopy, stretched on two uprights and held in place by four guy ropes, will keep the sun or rain off, and may be taken down easily when there is a hard blow.

A Little Talk on Mixture

Few of the small launch engines are equipped with carburetors which automatically regulate the mixture for different speeds of the motor, and as a rule the supply of gasolene must be cut down after the boat has attained full headway. This necessitates a different mixture for starting, and is oftentimes the cause of much of the fault found with this type of motor. The charge furnished by these mixing valves is also affected by changes in the temperature and density of the air, and this is often accountable for the trouble found in starting at night a motor which has been running well all day. Boats with a fantail or overhanging stern will oftentimes bring the wheel a considerable distance out of water when running in a heavy sea, and when this happens, the missing and irregular running of the motor are caused by the inability of the mixing valve to regulate itself to the increased speed of the engine. The missing, however, is seldom sufficient to stop the motor entirely, and when the boat resumes its normal position, with its wheel entirely under water, the motor will continue its regular running. Of course, the greater the distance the wheel comes out of water, the less will be the push exerted on the boat, and this fact was made use of by a party of campers who had hired a small motor boat for a short time. It was very difficult to start this engine, but when once running, it would continue to work until the gasolene or spark was shut off. Consequently the party devised the scheme of moving forward in the boat when it was desired to stop or slow down, and the resultant raising of the propeller from the water corresponded to throttling or shutting off the engine. By shifting the weight to various positions, nearly all speeds from a mile an hour to full headway were attained without regulating the engine. This method, however, is not advisable for general practice, and is only given to show the variety of means which may be improvised "at a pinch."

Concrete Ships

The idea of a vessel built of re-enforced concrete strikes one as exceedingly curious. It makes the farmer's "stone boat" assume a grotesquely real character. For years iron and steel ships have had a lining of concrete for protection of the plates from rust. Now and then a yachtsman, for the sake of keeping a leaky boat dry, has covered his planking on the inside with cement. There is a tradition of a Wilmington boat that was so rusted as to be "floating on her cement," but the actual building of the boat of re-enforced concrete seems to be the climax. A firm in Rome has built a large number of concrete vessels, mostly intended for floats, pontoon bridges, etc. These include boats for construction work, coal barges and lighters up to the size of 150 tons. The frames and longitudinal beams are of concrete, re-enforced with round bars, and the skin is made of single or double layers of concrete stiffened with wire netting. The outside skin is a layer of pure cement. For durability the method seems to offer many advantages. The cost is said to be about half that of iron vessels of equal dimensions. While this was supposed to be the newest thing out in ship construction, there was in the first Paris Exposition of 1855, fifty-three years ago, a small boat shown, built from re-enforced concrete. She is still afloat, but will soon be put into a technical museum as an exhibit.

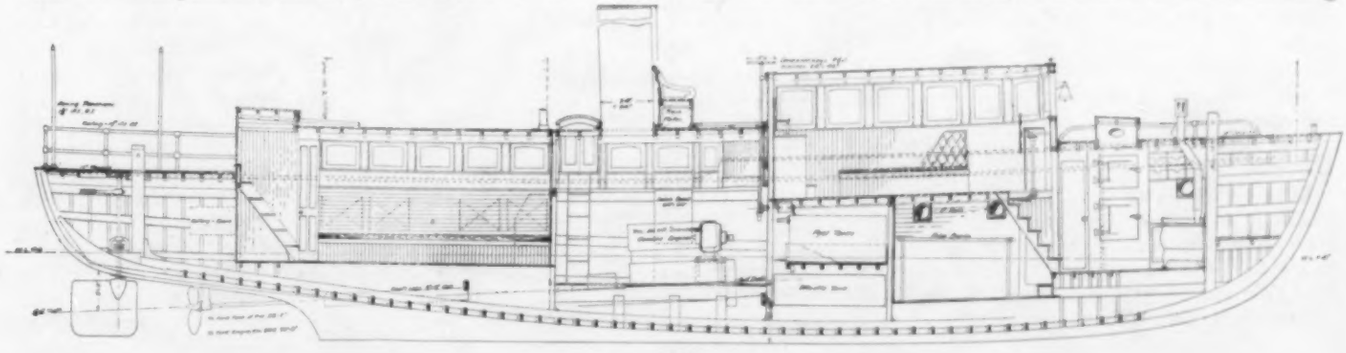


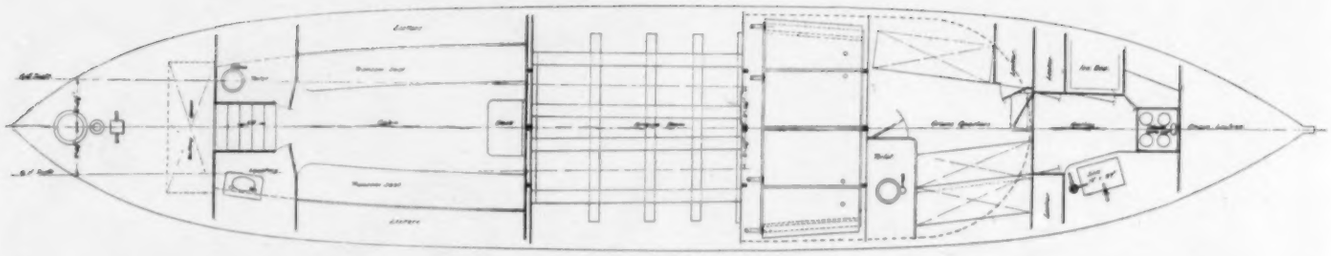
GUIDE. THE FIRST UNITED STATES REVENUE CUTTER TO UTILIZE THE GASOLENE ENGINE AS A MOTIVE POWER.

Guide: A 70-Foot Motor Revenue Cutter

A PECULIAR interest is attached to Guide, as she is the first United States Revenue cutter operated by gasolene in place of steam. She was built by the Electric Launch Company, of Bayonne, N. J., for the United States Treasury Department and is intended for anchorage service in New York harbor and vicinity.

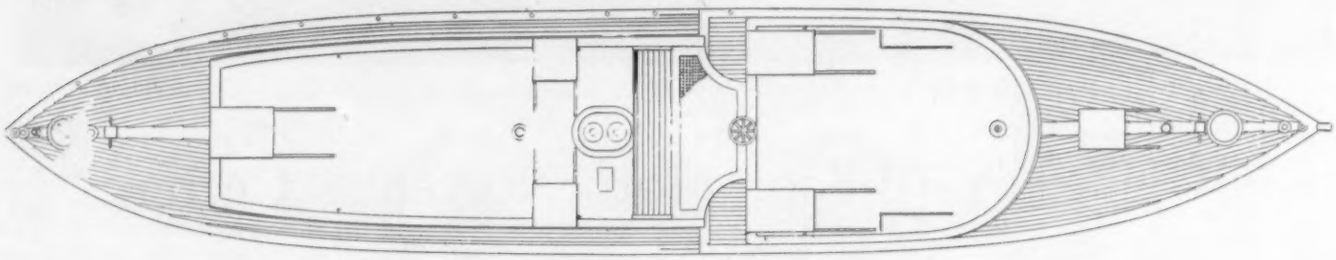
She is 70 feet in length over all; 65 feet on the water line, 13 feet 6 inches beam, 4 feet 6 inches draft, and deep moulded. Her gross weight is 27 tons. The hull is of very substantial construction, oak frame, cedar planked and copper fastened throughout. Pilot and cabin house are finished outside in quartered oak, while the interior finish is in oak with mahogany trim. For the crew of four men there is a forecastle extending across the entire width of the boat. Forward of this and entered by a door on the port side is a galley eight feet in length, with locker and ice box on the port and another locker and an 18 x 27-inch seat on the starboard side. A ship's stove, with four holes, is at the forward end, right against the bulkhead separating the galley from the chain locker. The stove pipe projects through the center of the forward deck just behind the bits. Aft of the crew's quarters are four fuel tanks of heavy galvanized steel and a total capacity of 1,000 gallons. Underneath the gasolene reservoirs are air tanks for the whistle, and stowage space. Back of the tank compartment, and separated at both ends from the rest of the boat by two bulkheads, is the engine room, 11½ feet in length, containing two 50-hp. Standard engines. The engine room is entered by means of a companion hatch and a brass ladder at the after end on the starboard side. The floor, while raised above that of forecastle, is low enough to allow the shaft plenty of room to run under the saloon floor. The cabin or saloon, which is 16½ feet in length, is entered by a flight of steps from the after deck. There are lockers and transoms on each side and a desk is placed against the forward saloon bulkhead. The after deck, 11 feet in length, is protected by a heavy brass rail and sheltered by an awning on metal stanchions. Battery equipment is stored under the forward portion of the deck, while a circular hatch gives entrance to stowage space under the after portion. Her pilot house, 13 feet in length, extends across the full width of the boat, making a spacious cabin for dining and officers' quarters and contains side transoms providing for two berths and also a large mahogany sideboard and locker. At the forward end of this room is a steering wheel to be used in stormy weather and on the starboard side are steps leading down to the galley. This house is sunk about 2½ feet into the deck and is located directly over the forecastle and tank space. At each side of the after end of the pilot house a flight of steps leads up to the deck. Between the pilot house and the cabin trunk, which covers engine room and after cabin, is a steering bridge with a horizontal wheel, aft of which, under an awning, is a thwartship settee placed at the forward end of the after trunk and allowing an unobstructed view over the roof of the pilot house. Back of this settee is a large dummy stack, which furnishes a means of ventilation for the engine room. Aft of the pilot house, the raised forward deck ceases and there is a narrow deck about a foot and a half in width along





each side of the after cabin trunk, which, as well as the after deck, is shaded by an awning. The galley and forecastle are lighted and ventilated by means of four hinged ports in each compartment. The rest of the boat is supplied with windows in drop sashes. She is fitted with a complete electric-light plant and has a powerful searchlight on forward pilot-house roof.

The cutter is built particularly strong and, as has been already mentioned, her construction throughout is very heavy, to allow of her standing the rough usage experienced in boarding large craft in all sorts of weather.



Shearwater II. A 27-Rater

THE accompanying plans and photograph are of the sloop Shearwater II, designed by Mr. Fred D. Lawley and built by George Lawley & Son Corporation for Mr. L. H. Spaulding, of Lowell, Mass., during the past winter.

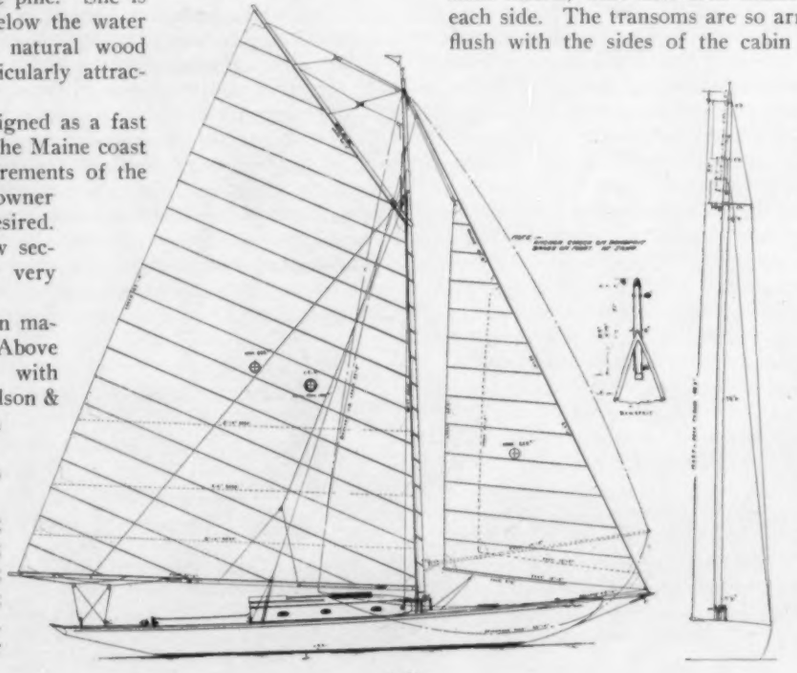
She has white oak keel, stern and stem. The planking is double, with white cedar inside planks and mahogany for the outside. Both frames and deck beams are of white oak and the deck is of the best white pine. She is painted a bronze color below the water line and finished in the natural wood above, giving her a particularly attractive appearance.

Shearwater II was designed as a fast cruiser, to be used along the Maine coast and also to fill the requirements of the 27-rating class, so the owner could race her if he so desired. She has fairly sharp bow sections, which makes her very easy in a seaway.

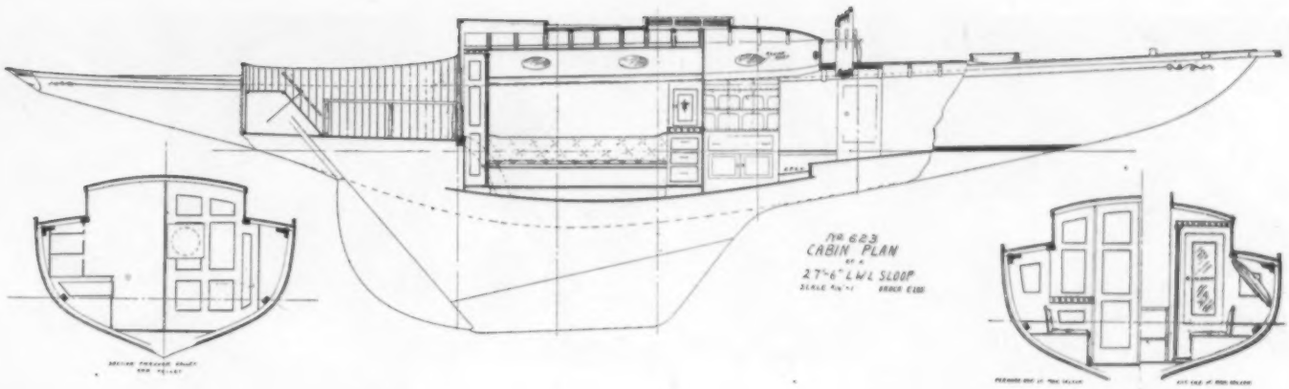
The cabin is finished in mahogany and white paint. Above decks she is equipped with Lawley hollow spars, Wilson & Silsby sails and Cuban mahogany blocks.

Her dimensions are as follows:

Length over all, 43′ 0″; length L. W. L., 27′ 6″; beam, 9′ 6″; draft, 6′ 3″; sail area, 1,050 sq. feet; lead (outside), 6,500 lbs.



As will be seen by her accommodation plans, she has a large forecastle containing two pipe berths and entered by a good-sized circular deck hatch. The galley and main saloon are underneath the cabin trunk, which extends to within a few inches of the mast. Forward on the port side is the galley, with a large locker, stove, dresser and dish rack along the port and a capacious ice box in the starboard side. From the galley a swinging door gives entrance to the main saloon, with extension transoms and hanging bunks on each side. The transoms are so arranged that their backs are flush with the sides of the cabin trunk, while the hanging bunks are beneath the deck. The main saloon is entered by a central companionway leading from the cockpit. On each side of the steps is a clothing locker, in the swinging doors of which mirrors are set. The saloon is lighted by four oval port lights, two on each side and four additional oval and two round port lights are placed in the forward end of the trunk, lighting toilet and galley. The cockpit is fitted with seats, cut away aft to give free access to either side of the steering-wheel box. She has an unusual amount of after deck at the rear of the cockpit, equal in area, in fact, to that of the cock-



pit itself. This, together with a generous amount of deck on either side of the cockpit makes her a particularly comfortable cruising craft. Her long, overhanging bow and stern give a rakish and attractive appearance. Her interior has been so arranged as to take advantage of practically every square inch of space, which could be used for living or storage accommodations.

Her plans show a craft quite different from the latest boats built under the new rating rule. The tendency seems to be to draw out the ends very thinly. In one of the late boats there was actually a hollow in both the deck and the waterline. But in the Shearwater II., Mr. Lawley, instead of trying to make the waterline as long as possible, has made it shorter than that of any of the present 27-footers. This, with the same over-all length, gives more overhang, and as there was no attempt to try and make a rule beater, the ends were kept fairly full. This insures a long, easy side to sail on when the boat is heeled.

At the same time the ends were made sharp enough to prevent pounding in any kind of a sea.

Her midship section shows a fair amount of dead rise, with an easy bilge, while her after sections are carried out fair and true, making a consistently wholesome type of boat.

Shearwater II. resembles somewhat the old 25-footers, which were so popular in the East a few years ago.

SHEARWATER II. A FAST CRUISER FOR USE ON THE MAINE COAST. SHE IS DESIGNED TO FULFILL THE REQUIREMENTS OF THE 27-RATING CLASS.

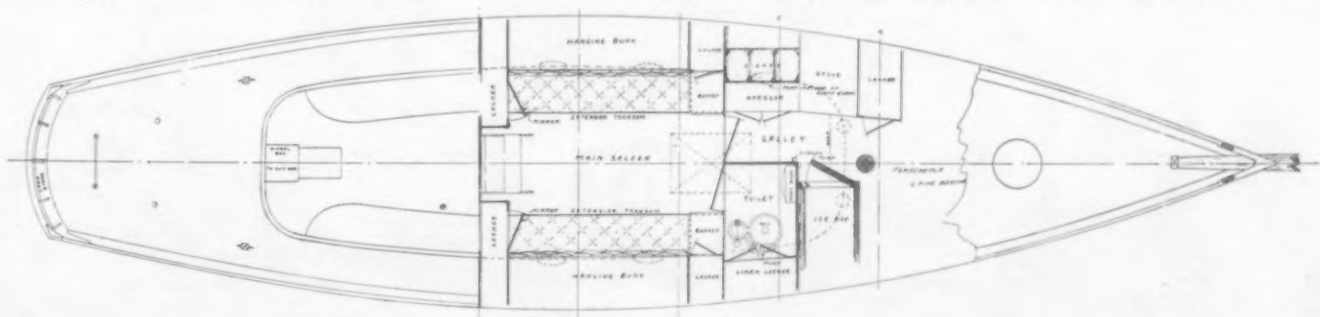
While many yachtsmen have received the impression that a boat built to the rule is necessarily a racing craft and cannot have cruising accommodations and stand a show of winning, the impression is not entirely correct.

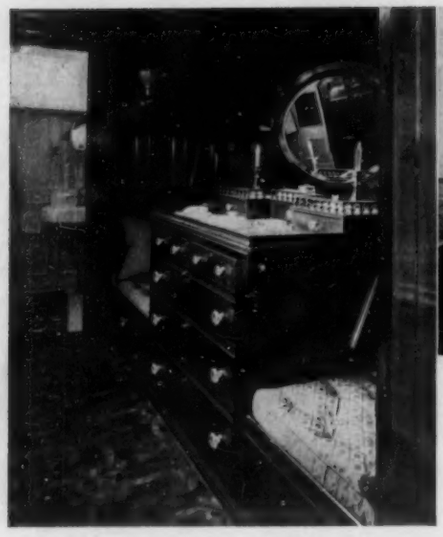
The performance of the 22-rating Capsicum, with good cruising accommodations, last year against the boats without cabins should also help to dispel this illusion, and it is to be hoped that more persons will build boats in these classes.

There is no doubt that the new rule provides for a more wholesome type than the old one, making better sea boats and cruisers, and it is gratifying to see men like Mr. Spaulding with courage to build cruisers to this rule, as a good start is all that is necessary to induce others to fall in line.

The performance of the Shearwater II. will be watched with much interest by those yachtsmen who want a cruiser and, at the same time, a boat that can be raced occasionally with some chance of victory.

Her sail plan is typical of the rig on most of the boats Lawley has turned out, with rather a square-headed mainsail, with a long gaff, insuring good driving power to windward, with more masthead to hold it up than the average boat. The rig is moderate and nicely balanced, with no radical features, and can easily be handled by a crew of four when cruising, and five or six men when racing; the additional men only being necessary to handle the light sails.





OWNER'S STATEROOM. STARBOARD VIEW. THE DRESSER AND SEATS GIVE GREAT ACCOMMODATION FOR PERSONAL BELONGINGS.

FORWARD DECK OF RAEO. THE SKYLIGHT BEHIND THE STEERSMAN OPENS INTO THE OWNER'S CABIN.

GUEST ROOM, LOOKING AFT INTO THE AFTER BATH ROOM. DOUBLE BED HAS BUREAU DRAWERS UNDERNEATH FOR STORAGE.

Raeo:
A 73-Foot Cruising Power Boat

Photographs by Edwin Levick

RAEO was designed for Mr. Ralph S. Townsend by Henry J. Gielow, with a view of producing a cruising power craft capable of standing rough weather, yet with a draft which would not bar her from running up small tributaries or from navigating shallow bays and inlets, which often present a most attractive cruising ground.

That she has amply fulfilled the purpose of her designer has been demonstrated by a cruise of over one thousand miles on Chesapeake Bay and its tributaries.

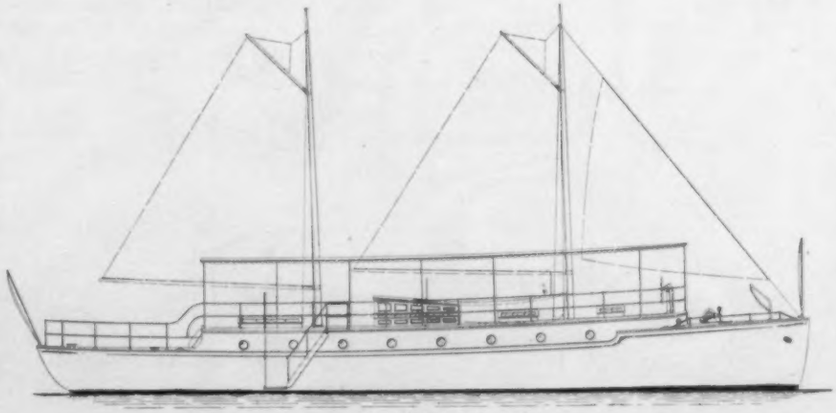
She has a water-line length of 63′ 9″ and is 73′ over all with a beam of 15′ and a draught of 4′ 4″ with all stores on board. Her liberal beam gives exceptionally roomy accommodations and her moderate schooner rig enables her to make moderate progress under favorable circumstances, and will give control of the vessel in case of any disarrangement of the machinery.

There are no deck houses, but for a distance of 38′ amidships the sides of the hull are carried up twelve inches, forming a flush-deck. Forward this raised section sweeps across the deck with a graceful curve, making the total length of raised deck, under which are the living quarters, 45′. The skylight companion hood and slide are of mahogany of substantial design, well adapted for extensive cruising and sea work. Ports along each side give light and ventilation. Watertight transverse bulkheads are arranged to secure safety in case of collision or going ashore.

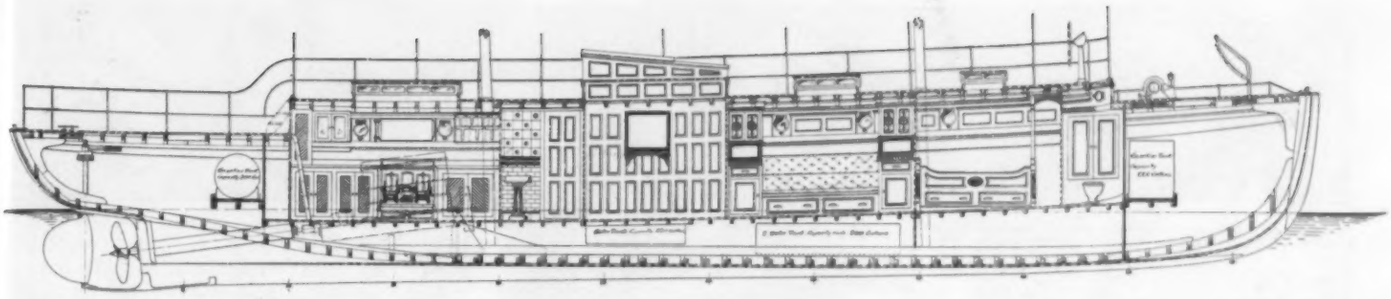
The owner's quarters are forward. Immediately aft of the collision bulkhead are a bath and a large wardrobe on the port side. Aft of this is the owner's state room, 8′ 6″ x 11′ 6″, with full-size mahogany bed on the port side, having drawers underneath. Forward of the bed is a seat with lockers below. On the starboard side are sofa, dressing table and bureau with mirror.

The saloon, which is immediately aft of the owner's stateroom, is 10′ x 14′, has a sofa along each side, arranged to extend into berths at night. Sideboards and bookcases are also in this compartment.

Aft of saloon on the port side is a good-sized steerage, with a mahogany stairway leading to the deck. To port of this is a large closet for valises and a wardrobe, while further aft is a large ice box. On the starboard side, opposite the steerage, is a stateroom 7′ x 8′ with berth, bureau and wardrobe connecting with the bath room immediately aft of it. This bath room has tiled floor and walls, and contains porcelain bath, washstand and open nickel-plated plumbing. Saloons, stateroom and steerage are finished in bright mahogany panel work, and the engine room galley and crew's quarters are done in white enamel. The owner's aim has been to have few but large rooms and enough space to make the boat thoroughly comfortable for long cruises, making of her a home rather than a craft for short outings.



From the after end of the steerage a swing door leads into the port side of the combined engine room, galley and crew's quarters. The port side of the compartment serves as the galley and contains a dresser with dish rack above and closet beneath, a three-hole coal stove and a sink and china closet, ranged in the order given, along the port side.



On the starboard side are two hammock berths and a wardrobe for the crew. Across the after end of the cabin and projecting under the deck is a row of closets, which adds much to the storage capacity. A companion hatch and steps at the port side of the after end of the compartment give access to the after deck, in which an 18-inch circular hatch gives entrance to the storage space underneath.

The engine room, galley and crew's quarters have a combined floor space of more than 200 square feet and details of convenience have been worked out with great care.

Her power is a 50-hp Standard motor, which gives a speed of 11 miles per hour. She is lighted by acetylene gas supplied from a safety storage tank of 200 cubic feet capacity. Fuel tanks are of liberal proportions, sufficient to secure a cruising radius of 800 miles under full power.

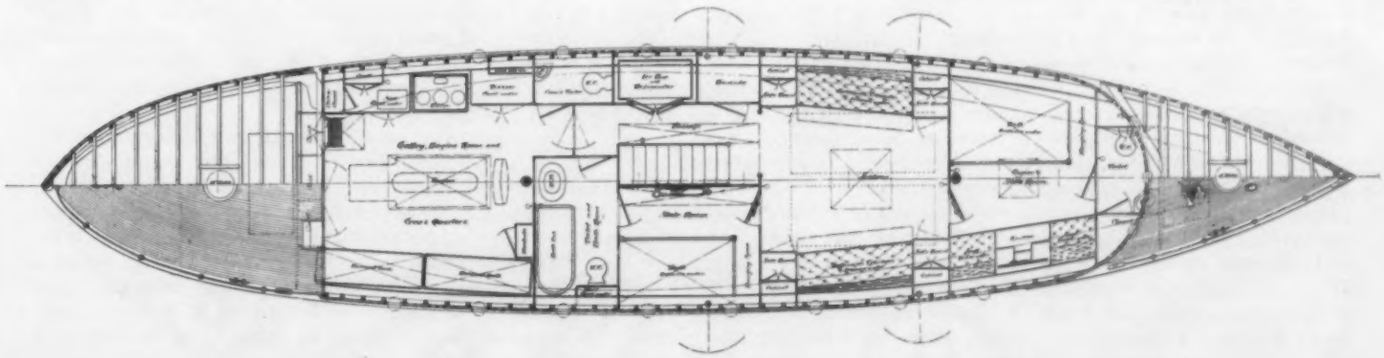
In addition the boat has a schooner rig of 800 square feet of canvas, consisting of foresail, mainsail and an inboard jib, which will enable her to make port in case of emergency, and which will steady her in a heavy seaway.

She is steered and controlled from the forward part of the raised trunk, and the entire upper deck is shaded by an awning mounted on a removable stanchion, which may be taken down when the sails are to be used.

SALOON LOOKING FORWARD. THE AMOUNT OF LIVING SPACE WHICH CAN BE OBTAINED IN A WELL-DESIGNED CRAFT OF THIS SIZE IS WELL ILLUSTRATED BY THIS CABIN OF RAEO.

ENGINE ROOM GALLEY OF RAEO LOOKING FORWARD, SHOWING HER THREE-CYLINDER 50-HORSEPOWER ENGINE. STOVE, SINK AND BOILER ARE SHOWN ON THE PORT SIDE.

Both the lower after deck and the main raised deck are protected by a heavy continuous railing, broken on the starboard side to accommodate the boarding and landing gangway. The owner's stateroom has two port lights and a skylight, the saloon four ports and a skylight, the after stateroom and steerage two ports each, while the engine room has four ports and a large skylight, so that passengers and crew of four have all the ventilation possible.



EDITORIAL

Published by the Yachting Publishing Co.: Oswald Garrison Villard, President; Robert M. McBride, Secretary and Treasurer.

The Cape May Race Since the Brooklyn Yacht Club's May race for the $1,000 cup offered by Sir Thomas Lipton was a most praiseworthy undertaking, it is a great pity that it was marred by certain happenings and by lack of care in working out the details. The contest was primarily arranged as an object-lesson to doubters on both sides of the ocean, in order to prove that international yacht races could be sailed without extraordinary expense, and narrow-minded and fairly prohibitive rules. That no foreign yachtsmen were sufficiently interested to enter their boats does not in any way detract from the meritorious nature of the race. Foreigners may come another year. Meanwhile it was a goodly achievement to have brought out to the starting line nineteen yachts.

The unfortunate circumstances were, first the ending of the contest inside of a land-locked bight, instead of having the finish-line at the Scotland Lightship, where every boat would have had a chance of carrying the breeze to the end, whereas in Gravesend Bay the winds are generally fluky and light. Indeed, there are those who believe that Mimosa III. would have finished within her allowance had it not been for lack of wind in the lower bay. That the winning boat, Shamrock, Mr. Frederick Thompson's seventy-foot schooner, should have carried a professional skipper has also caused some grumbling among yachtsmen. But Mr. Thompson was quite within his rights in engaging Captain Charles Barr to sail his boat, and Captain Lemuel Miller, who was Barr's mate on the Reliance, to handle his craft for him. It would have been better, we think, for the sport, had Mr. Thompson decided otherwise, but no one can blame him for the action he took, even though it should lead another year to the refusal of the smaller boats, sailed by amateurs, to enter. Perhaps another year there may be a clearer understanding of the situation, or new rules which will let everyone know precisely what the conditions are. So far as the sport is concerned, there is no question whatever that it would be better if only regular skippers or amateurs were allowed to handle the boats. Mr. Thompson showed the proper sportsmanlike spirit in yielding to the desire for the remeasurement of his boat. In view of the changes in rules, and in the rating of Shamrock, it was only right that the remeasurement should be made, and he was under special obligations to do the handsome thing because of the fact that he is reported to have forced Lilla and Hyperion to give way when they were on the starboard tack in order to avoid a smash-up. There is no doubt that the measurement rules should be changed so far as concerns the racing of sloops against schooners. Under them, schooners rate at 85 per cent. of their full rating when contesting with sloops, whereas the single-stickers figure at their full measurement. This naturally gave the schooners an immense advantage over the little sloops. Mimosa III., for instance, which sailed a beautiful race, spreads something under 1,000 square feet of canvas, and measures 30.9 feet on the water line. Shamrock carries over 5,000 square feet of sail and is 70.4 feet water line. Yet, because of the rating regulation, the little sloop received from the schooner an allowance of only 62.5 seconds a mile. All of these things will, we trust, be cleared up soon. The sport needs this race, and nothing should prevent its repetition next year, with an equal number of boats. It was a hard contest, the weather conditions compelling the retirement of a number of the smaller craft, but it is the kind of a race that appeals to the true yachtsman, and will help, under proper conditions, to develop the sport.

Custom House Regulations The Collector of the Port of New York informs us that definite instructions have been received from Washington that on open craft the three-light combination lantern will not be considered a satisfactory substitute for separate port, starboard and bow lights, and that power boats out with even a cabin trunk must be equipped with the three separate regulation lamps and their screens.

A concession, we believe, should be made because of the fact that an open motor boat of 16 to 25, or even 30 feet in length, could not well be equipped with the 3-foot screens, which are the necessary parts of the side-light equipment.

In the matter of whistles and bells, any form of whistle capable of producing continuous blast of four seconds' duration, and actuated mechanically, and which would be really practical for signalling purposes, is acceptable, and small launches wil not be restricted to a minimum diameter of 8 inches for their bells. Any diameter of bell giving a sound sufficiently loud to serve as a fog signal will answer.

There seems to be an intention on the part of the customs officers to recognize the fact that the regulations applying to steam craft of the larger sizes are too severe when applied to the small pleasure craft, and we have the official admission so to speak, admitted that it is unreasonable to expect that the bow light on a launch or power skiff of but a few inches free board could be of such power or carried at such height from the water as to be visible at a distance of 5 miles, as is prescribed by the regulations applying to steam craft.

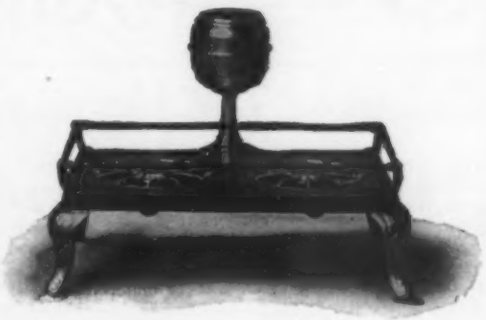
But despite this intention as locally defined, it must be remembered that under the rules and regulations governing traffic on the inland water of this country, any vessel mechanically propelled must be considered as a steamer, and that if instructions come from Washington to the effect that the regulations must be rigidly enforced, there will be no hope for the small boater but to comply with, and the inspectors to enforce, the rules to the letter, instead of in the spirit, as it is the present policy of the officials.

This is an absurd situation. Of the thousands of small, open launches—some of them mere fishing skiffs with 1½ or 2-hp. motors—the law makes no exceptions, and it is due only to the good nature and good sense of those whose duty it is to enforce it that an honest attempt on the part of a motor-boat owner to do the best he can may be accepted as an indication of good faith, and treated accordingly.

There is no reason why matters should be in this state, and it is distinctly up to the motor-boat owners of this country and to the manufacturers of motor craft and marine engines to secure legislation which will allow a man to carry an equipment proportionate to the size of his craft and be secure in the knowledge that he is complying with the law, and is not subject to the good nature and good sense of some individual or the arbitrary ruling of some inspector as to whether his equipment is, or is not, legal. It is time vigorous, united action be taken by those interested to have definite, practical and reasonable regulations enacted.

This Stove Burns Denatured Alcohol, the New Fuel. It is Safe, Odorless and Efficient, and Overcomes All Kerosene Troubles

This practical Marine Cooking Stove requires only one fuel—*Denatured Alcohol*—to start and to burn. It is the most economical of all stoves, consuming only one gallon of alcohol in thirty-five hours per burner. It burns without soot or smoke, is odorless and clean. It is finished so that no part can rust—cannot get out of order and every part



is easy to get at. Operated safely in rough weather. Can be fastened down anywhere and holds cooking utensils in place by rails around each burner. The fuel is easily obtained, and being in liquid form can be transported and stored in any part of the boat without danger. Made in one, two and three burners.

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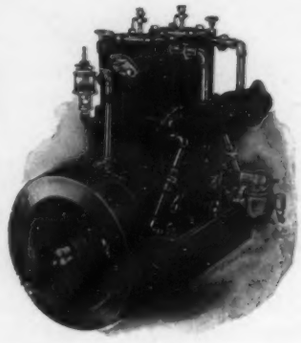
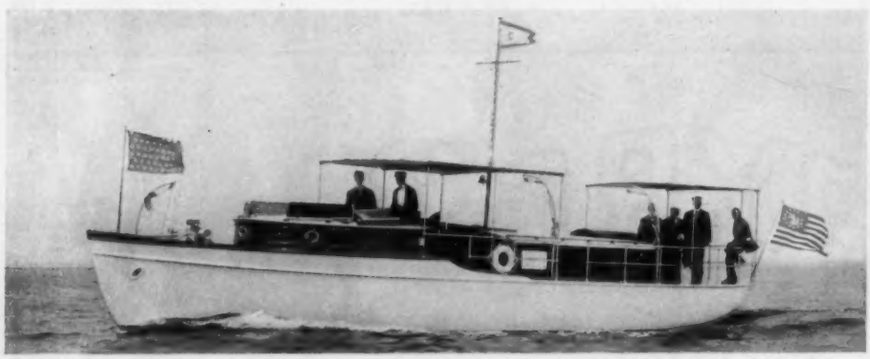


A Fast Runabout and a 52-foot Cabin Cruiser. The Electric Launch Company, of Bayonne, N. J., has sold to Mr. Albert C. Bostwick a 35-foot, 4-foot, 10-inch beam fast runabout, with seating accommotions for four passengers. She is equipped with a 50-hp. 6-cylinder Peerless Automarine Motor, and her trial trip turned up as high as 24 miles per hour. Her hull is entirely of mahogany, the outside being painted to preserve the wood. As will be seen by the illustration, her engine is placed at the forward end of the cockpit under a removable hood, and she is steered and controlled from the after side of the bulkhead separating the engine from the seating space. She has a straight stem and a transom stern.

The engine space is ventilated by a brass cowl, just aft of the forward point of the combing, and by side ventilators.

The 52-foot Wistaria, built for Mr. A. G. Cheseborough, of Brooklyn, by the Electric Launch Company, is now in commission at Northport, on Long Island Sound. She is a combination of the hunting trunk cabin, forward and raised trunk with glass side windows aft, with the steering bridge separating the two. The forward end of the hunting trunk contains round port lights, and there are two drop sash windows at the after end of each side of this trunk.

The engine room, which is situated under the forward trunk, is entered by a companion hatch on the port side. Steering, control and signal whistles are all manipulated from the steering deck, between the two trunks. This bridge is covered by an awning on metal stanchions, while a second awning protects the after deck. Her forward deck as far aft as the bridge is raised. From this point her topside curves gracefully down to the level of the after deck, which, with the side decks, is surrounded by a pipe railing. She has a moderately curved bow and compromise stern. The hull is of substantial construction, with oak frame, cedar planking, and is copper fastened throughout. Both exterior and interior of cabin are finished in quartered oak, and the boat contains sleeping accommodations for six passengers, with a berth under the forward trunk for the engineer. She is equipped with a 4-cylinder 25-hp. Standard engine, which gives her a speed of 11 miles an hour.



52-Foot Elco Cruising Boat "Wistaria."

Denatured Alcohol for Cooking Purposes. Denatured alcohol as a fuel for cooking is absolutely safe, clean and odorless. As the combustion is perfect there is no smoke, ashes nor dust. By the use of proper appliances all kinds of food can be cooked rapidly, easily and far more cheaply than the same cooking can be done with coal.

Meats, fish, fruits and vegetables can be cooked with greater precision than with coal, because the control of the alcohol gas flame admits of finer adjustment than can be obtained with coal. Recent experiments have shown that foods cooked with denatured alcohol have a more characteristic flavor, are more delicate, and that all foods can be cooked with less waste and labor and with fewer utensils. Cooking with denatured alcohol particularly recommends itself to the yachtsman, to whom space is at a premium and coolness and comfort in the galley are of the utmost importance.

Stoves using denatured alcohol as a fuel and producing a hot, blue flame, may now be obtained in various patterns, suitable for the yacht, the city or country home, the camp or the traveler, and which, with denatured alcohol at 50 cents per gallon, are cheaper than coal burners, with coal at $6 per ton, and may now be procured from the Alcohol Utilities Co., of 156 W. Twenty-third Street, New York City, where denatured alcohol in convenient sized tins of various capacities may also be purchased.

The Rajah's Pilgrimage. The Rajah Auto Supply Company, formerly of 140 Washington Street, New York City, manufacturers of the Rajah spark plugs and hoods, are now located in their new factory at Bloomfield, N. J., Watessing Station of the D., L. & W. R. R.

A Soot Proof Magneto and Jump Spark Plug. The genuine Metzger "soot-proof" plug, manufactured by C. A. Metzger, Inc., is what is known as a "porcelain plug"—the insulator being a single, large, strong, hand-turned porcelain as shown. It is well known that porcelain is non-absorbent and will not disintegrate in hot gases. "Soot-proof" plugs *will always spark*. Proof of this is, that if the porcelain is coated with carbon and by holding it in a gas jet or coated with *both oil and carbon* and inserted in a motor, the latter can be started with the same ease as with a clean plug, and after the motor is operated for a short time the plug will be found perfectly clean—the carbon deposit having been burned off.

The reason for this is that "soot-proof" plugs have a large surface of insulating material—2 inches between the outer shell and the center spindle, and it is easier for electricity to jump a thirty-second of an inch air space than to jump through an inch of soot. That is why short circuiting is impossible.

The porcelain of the "soot-proof" plug has a squared socket, into which is nicely fitted the rectangular shoulder of the spindle. This arrangement prevents the spindle from turning in the porcelain when terminals are adjusted, should the binding screw at the head or outer end become loosened. The illustration shows this construction very nicely.

The outer end of the shell, which fits into the engine, is hexagonal, with ample gripping surface for wrench. The bushing which holds the porcelain into the body is round, with squared sides, affording

Sectional view of a Metzger "Soot-Proof" Spark Plug, showing how, by means of a squared socket and a rectangular-shouldered spindle the danger of spindle turning when adjusting the terminals is obviated.

EVERYTHING and ANYTHING
in
AUTOMOBILE SUPPLIES

THE BEST SPARK PLUG MADE

The Pinless Multiple Spark Plug

IT BURNS THE SOOT

Sparks obtained by means of intermediary ring—no old fashioned pin to cause trouble. Gives several sparks in cylinder under compression. A gap on plug wire intensifies spark and prevents sooting. Mica core fits absolutely tight and leak-proof yet may be instantly removed by a blow upon the head.

Price $1.50

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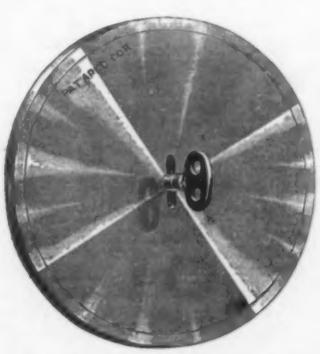

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Always something new and up to date in Motor Boat Fittings.

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Uncertain Ignition

Uncertain ignition is uncertain in two ways. It is uncertain in its work and it is uncertain in its duration. One way means continual attention; the other means walking home.

Would it surprise you to know that there is an ignition that never misses and never quits? Such is the experience of thousands of boat owners with Edison Batteries and Edison Spark Coils.

There is a book about them called "Getting There and Back," which we mail free to all who want better ignition.

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10 Fifth Avenue, New York 304 Wabash Avenue, Chicago
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ample surface for wrench when assembling or taking plug apart. Both of these parts are set deep into their respective sockets, so that good, tight joints are always possible.

Between the shoulder of the porcelain, which sets into the enlarged portion of the shell, and the end of the metal bushing, a brass ring is placed, to relieve pressure on the porcelain when the bushing is turned down to make tight joint. Under the shoulder an asbestos-lined soft copper gasket is placed to make the joint absolutely air and heat proof.

There are four non-corrosive sparking points stamped from one piece surrounding the center electrode, which are spun into the end of the base of the plug. These points are set 1/32d inch of an inch from the electrode, and are so placed that they will not readily get out of adjustment, as often happens with plugs where a single wire projecting from the shell is used.

A Reversing Propeller which Keeps a Constant Load on the Engine. The Roper Safety Propeller is a speed-controlling and reversing screw combined, a propeller that does some really remarkable things, yet is simplicity itself in construction and absolutely accurate in operation.

It is an absolute departure from old lines, the development of an entirely new principle as applied to propellers. There is no other device made for the same purpose or on a similar principle.

The propeller proper consists of a "spider," four blades, a two-piece hub and a locking screw. The "spider" or frame is set-screwed on the shaft, which is driven directly from the motor. It is an "H"-shaped casting, the cross bar of which is bored to receive the shaft, and the four legs are turned and finished to act as bearings for the blades to turn on. These bearings extend up into the blades nearly to the center of pressure upon them, thus preventing cramping, and furnishing a very strong construction, which is covered by patent. The blades are designed along the lines of a perfect screw, and therefore have a constant pitch for all working parts of the surface. They are provided with arms having lugs, which work in cam slots in the hub or outer casing. Between these arms and the casing they also have a circular bridge, which prevents any possibility of the blades coming off of their bearings, or out of the hub, should the spider be accidentally broken. The hub or casing is made in two sections, which overlap at the ends and are joined together by large screws passing through both sections. At one end this screw is hollow, fitting snugly on the shaft, and at the other end the controlling sleeve is threaded and forms the screw lock. This construction is very simple, strong and efficient in holding the parts together. By the motion of the sleeve and hub lengthwise of the shaft the cam slots act upon the arms to move the blades through the various positions corresponding to the different speeds of the boat.

When the blades are set for full speed ahead the sleeve and hub are in the extreme forward position. As they are moved backward by the controlling lever, the front pair of blades start to turn upon their bearings toward a position in a plane at right angles to the shaft. This reduces the pitch of the blades, and consequently the speed of the boat. Were this the only pair of blades the motor would immediately speed up and begin to race as the pitch is reduced, owing to the decreased resistance of the water. But the rear pair of blades have not moved from their original position, and do not do so until the other passes the position of least resistance. Thus the load on the motor is kept uniform. When the first pair of blades pass neutral position, tending to reverse the boat, the second pair begin to turn toward neutral position. This forms a wedge in the water, the two sets of blades working against each other, and the load is still substantially uniform. When the reversing action of the first pair becomes stronger than the forward propelling section of the second pair, the boat begins to run backward. Finally, both pairs reach reversing position and the same extreme pitch. This gives full speed astern. The principle holds in passing from reverse to full speed ahead, as there is no possible position of the blades which does not load the motor substantially the same as every other position.

When starting the engine, have the controlling lever set in the notch of the quadrant, which corresponds with the neutral position of the blades. This must be found by experiment. The boat will then move neither ahead nor astern. After the throttle, spark, etc., have been adjusted to give the highest efficiency of the motor, the operator can give all his attention to the steering wheel and the controlling lever, for the motor will not race or stall, no matter in what position the lever is placed. To go ahead at full speed, push the lever way forward, and for full speed astern throw it way back. All intermediate positions give speeds of various degrees less than maximum, slower as the lever approaches the neutral position at the middle of the quadrant, and faster as it is moved to its extremes.

The accompanying illustrations will give a clear idea of the action of the two pairs of blades and their positions, relative to each other at different speeds and directions of boat. All the blades revolve constantly at a substantially uniform speed in the same direction, regardless of the speed or direction of the boat.

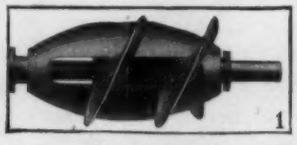
By the simple movement of the single controlling lever they are so adjusted that one pair will reinforce or counteract the effect of the other without changing the load on engines, thus producing perfect control of the speed of the boat in either direction.

The result is perfect control in both directions without adjustment of throttle or spark—a one-man control, a one-lever control. The boat may be started, speeded up, slowed down, stopped or reversed at will, all by the manipulation of one controlling lever. The engine runs constantly at substantially uniform speed, and its full power is always instantly available for use in emergencies. In moving the lever there is little difference in the strength required at different points of its movement, and there is no tendency to jerk the lever out of one's hand when the blades pass through the neutral position, which is noted sometimes with other reversing wheels.

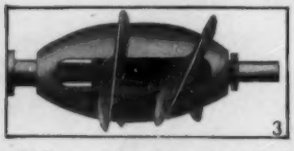
In making a landing it is not necessary or desirable to stop the motor, but on the contrary it is easy for the merest beginner to run slowly up to the wharf and stop in the berth chosen. With a little practice one can learn to swing the stern in either direction so as to hold the boat alongside the wharf. The same principle holds in picking up a mooring.

It has been demonstrated that a boat equipped with a Roper Safety Propeller can be driven as fast as or faster than one with any other type of blade or wheel.

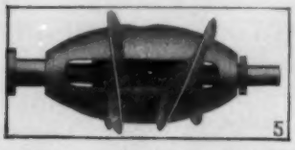
It collects no more weeds or grass than any ordinary propeller, and the open case and the action of the propeller expel dirt, and there is no place for it to find lodgment. On account of its strong construction and the elimination of shock and jar it is reasonable to assert that it will outlast two or three ordinary reversing propellers. It also makes many things possible that have hitherto been impossible with the gasolene engine, and is so reliable in every emergency and so simple and easy and yet sure in operation that women can with safety and confidence manage the motor boat equipped with one.



Full speed ahead.



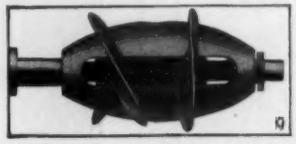
Little more than three-quarter speed ahead.



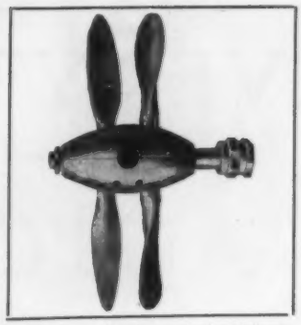
Little more than half speed ahead.

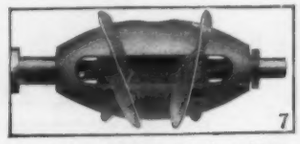
Full speed astern.

Little more than three-quarter speed astern.



A little more than half speed astern.


The propeller in neutral position.



End view blades, neutral position.

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A Good and Effective Signaling Device. At this time the ne of a practical signali equipment which w fill the bill and pass the scrutiny of the Unit States Government inspectors is an importa issue. For at present the average launch own is wondering just how to so arrange matters, th without undue weight or bulk of apparatus, l may produce sufficient noise to satisfy the reg lation, now being strictly enforced.

One of the best that has been brought YACHTING's attention is the Klaxon, built on th theory that to attract attention and secure re spectful and immediate right of way, the skippe must be provided with a signaling apparatu which will produce a discord, not a harmony. There is good philosophy in the theory, which impresses one with its weight the more the sub ject is considered.

This is a decidedly practical long-distance signalling device, bound to win its way speedily to the confidence of motor craft owners.

The marine type of Klaxon is electrically operated, and consists of a cam wheel, operated by a miniature motor. The revolutions of the cam wheel violently vibrates a diaphragm, pro-

The Klaxon, an electrically operated Signaling Device which roars a demand for attention.

ducing a roar which commands attention on the busiest water way, and will penetrate a fog bank further than any amount of harmony. Its method of operation is simplicity itself, press a button, and the air is rent into several distinct sections.

The ignition battery or a separate storage or dry battery operates the motor when the button is pressed. Any number of buttons can be distributed at convenient places, allowing the signal to be operated from any part of the boat, as may be desired.

Because of its extreme simplicity and very high mechanical efficiency, there is no appreciable wear on any of the parts; and it lasts almost indefinitely.

It produces, it is claimed, more sound with a minimum expenditure of energy to operate than any other propagator of noise. In fact, were one to replace the electric motor with a pulley, and belt it to a large driving pulley with a cotton string, a three-year-old child could, by turning the wheel, produce sufficient sound with it to be heard several miles, and the string would transmit the power without breaking.

The Klaxon is manufactured by Lovell, McConnell Manufacturing Co., of 365-7 Market street, Newark, N. J., who will furnish full particulars as to details of installation methods, and prices upon request.

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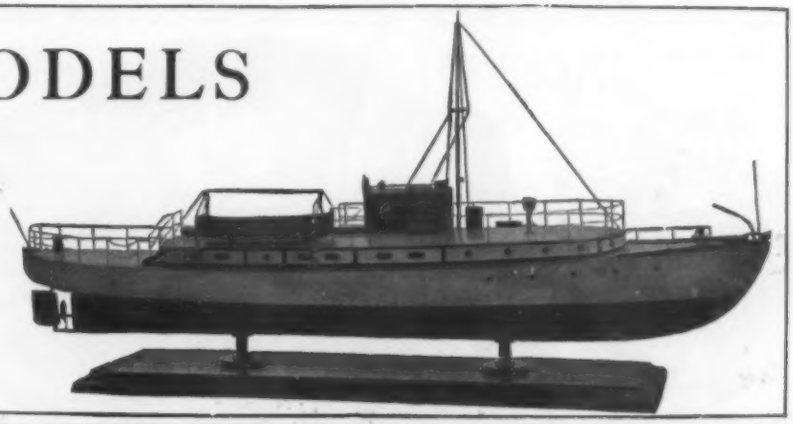

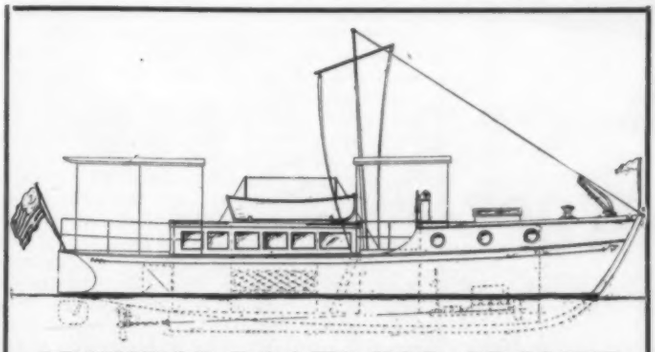

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Not a shaving need be taken off anywhere before the planking is applied

With the frames are sent patterns for cutting planking, etc., and detailed instructions for finishing your boat. Or, if desired, we can furnish planking, decking, coaming, etc., also hardware fittings and engines at low prices.

Don't think of buying or building a boat until you have read our *free booklet* about Pioneer Perfect Frames and Pioneer Full-Sized patterns. Or send 25c for Big 100-page Boat Builders' Book which contains over 300 illustrations of racing and pleasure boats, and contains valuable information about boats, engines, etc. Money cheerfully returned if not satisfied.

SPECIAL OFFER EXTENDED

Because of generous response and the great number of requests for extended time, we have decided to continue our liberal special offer of July to Sept. 5th, as follows:

By reason of the advantageous purchase of special material for our 25 ft. boat in the famous "300" line Compromise Torpedo Model shown in the illustration, we will furnish (**now**) **until September 5th,** complete finished frames of this model for **$45.00,** (regular price $63.75) This includes full-size patterns for planking, and detailed instructions for finishing. Material and workmanship guaranteed. Boatmen declare this to be the best model cruising and family launch ever put into the water

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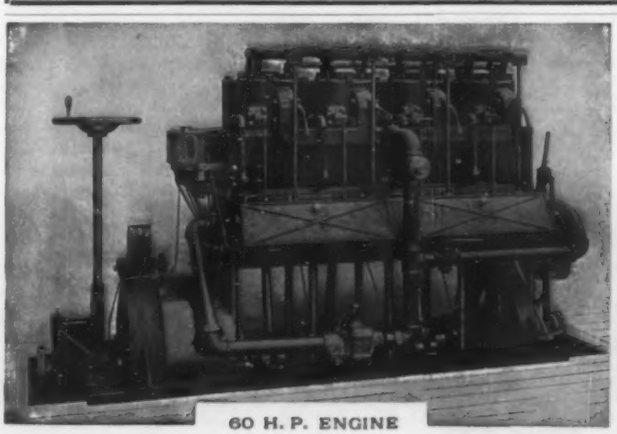

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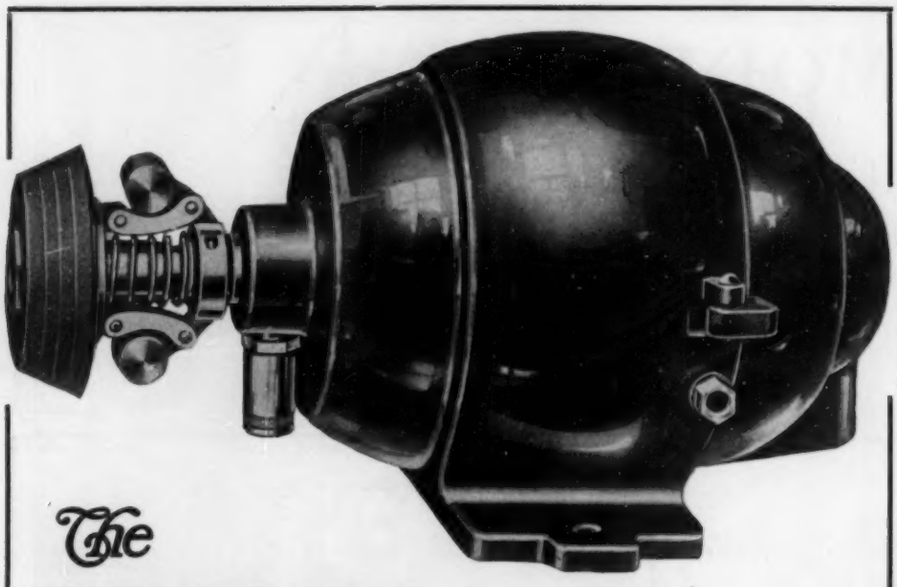

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J. A. GARRETT
74 State Street, Auburn, N. Y.

The Marblehead-Bermuda Ocean Yacht Race from the Deck of Zuhrah.

(*Continued from page 72.*)

elastic. In one of these jumps the poor, tired rope gave way, and with a terrifying snap the boom flew up.

"Put her up! Put her up!" came a shout from all sides to the wheelman, and the crew piled aft as one man. But the cry was unnecessary; already the staystail was shaking with the rattle of musketry fire. and ready hands cleated it to windward. One loose end of the main sheet was then passed around the boom as a preventer, and before it was even made fast John had tied a rope around his waist in case he went overboard, and scrambled monkey-like out on the boom. How he managed to stick there goodness only knows, but that professional crew of Zuhrah was certainly a wonderful one, and the most reckless feats seemed natural things to them. In a few seconds the sheet was reeved through again and the sail in place. But things were looking ugly. Rain in torrents was pouring down, the wind shrieked through the rigging while the waves grew bigger every minute. In New Rochelle harbor I had looked at the saucy Zuhrah, and thought her quite a bit of a boat, but in the middle of the ocean, with the elements unchained and venting their fiendish fury on her, mighty small and frail did she appear.

"Stand by to reef the mainsail," was the next order that reached us above the roar of the storm, and we stumbled to our places. The operation is a simple one, as a rule, but the wind now had a force of forty or more miles, and it was all our ten men could do to take her in inch by inch. A trysail was hoisted in place of the mainsail, but still the boat smothered. The waves were mountain high, and washed the deck in a manner that threatened to set adrift boats and spars in spite of their lashings. so the trysail came down, too, the staysail followed it, and the foresail double reefed was all the canvas we carried.

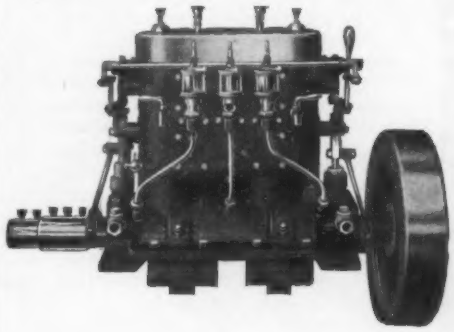
And so, hove-to, going one mile forward and two to leeward, we spent the next twenty-four hours. The sky was black, and the gale howled ominously, and the forced apathy lay heavy on us. Once someone asked the captain why he didn't carry more sail, since we were racing.

"Good seamanship," he said, curtly, "tells when to carry sail and when to shorten it, not how to drive a boat to destruction," and his was the wisdom of knowledge, the other's the fretfulness of inexperience.

The second night was an anxious one. Worn out by the long watches, deprived of sleep, because the stateroom bunks were untenable, and worried by the duration of the storm, the men spent most of the night on deck, stretched out in their oilskins, side by side. One only rose to take the log, watch the barometer and inspect ropes as much as the tossing allowed. The blackness was inky, and began to be populated with phantoms. Not a man but saw light on the horizon, sails approaching and other visions, the unfailing lot of the weary mariner.

It was dangerous navigating about deck. The slippery boards gave no hold to rubber boots, and the tossing boat threw one about like a feather. It was next to impossible to keep one's footing. Jack Tar gave us a bad scare. He had gone forward, and was making his way slowly back when he stumbled and pitched heavily to leeward, headforemost down the slanting deck. For a minute our hearts stood still. Had he missed the wire railing and gone over nothing could have saved him. But, fortunately,

STANLEY MOTORS



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Have stood the test of Long Service

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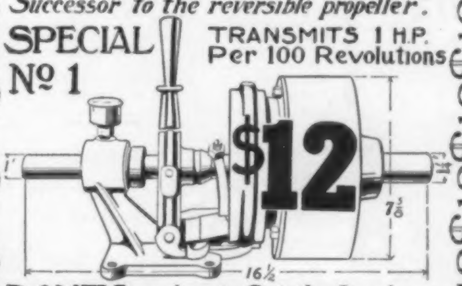

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But here is the most important point to you: Very careful records of the performance of the Jager Engine have been kept in each of these departments for the guidance of various other departments in the purchase of gasoline engines

As a result of this painstaking care, the

Jager Marine Engine

IS REPEATEDLY SELECTED, WHILE OTHER MAKES, SUBJECTED TO THE SAME TESTS ARE DISCARDED

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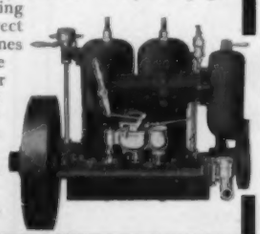

FERRO

The Ferro Machine and Foundry Co. (Dept. L), Cleveland, Ohio
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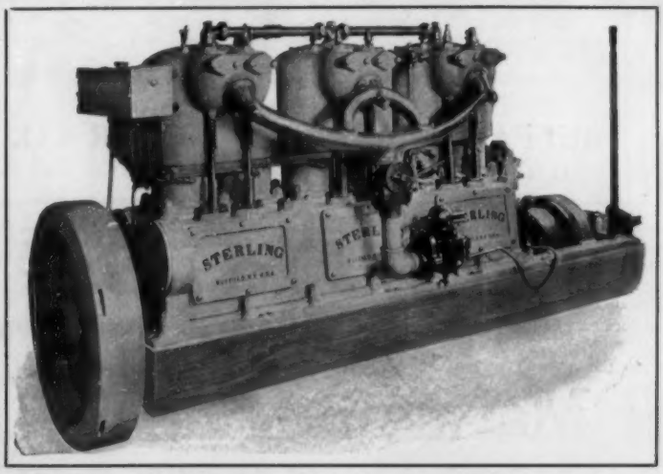

Mr. Thomas bought this Sterling Heavy Duty Engine for his private Yacht—you'll make no mistake if you follow his example.

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Read What the Builder of the New York-to-Paris Racer writes:

Buffalo, N. Y.,
June 16th, 1908.

Sterling Engine Co.
Niagara St., City.

Gentlemen:

I am greatly pleased to advise that the six-cylinder, heavy duty sixty horse-power motor installed in the Yacht "Butterfly" is particularly free from vibration and works up to the guaranteed power in the most satisfactory manner.

It is indeed surprising that so comparatively small a power plant will propel an 85 foot boat so swiftly and smoothly.

Sincerely yours,
(Signed)
E. R. THOMAS.

STERLING ENGINE CO., Buffalo, N. Y., U. S. A.
Member National Association of Engine and Boat Manufacturers

his hand met the wire, and with a great heave he pulled himself in.

Toward morning the wind moderated and the sea fell. When we had a chance to shoot the sun Capt. Hotine announced that we should see the Islands within two hours, but that we had fallen some thirty miles to leeward, and that we would hit the western end, so that our shortest way to St. David's Head would be around the southern shore. An hour and a half later the keen-sighted Bill, who had climbed the mast, reported land over the port bow, and we hailed our journey's end, but light head winds and calms sent us on at snail's pace, and it was 7 o'clock in the evening before we crossed the finish line. Aboard the committee boat we were told that Venona, Marchioness and Dervish had finished in the order named.

The Bermuda race of 1908 was undoubtedly a success, and if certain details of the preliminary management had been handled a bit more tactfully, it is likely that not five but twenty boats would have been in it. To Commodore Morse, of the Corinthian Yacht Club, and Commodore Trott, of the Bermuda Yacht Club, belong unstinted praise for their efficient and enthusiastic work in making the affair successful.

Particulars of the race follow:

CLASS B.

Length over all	.....	.....	.....
Vessel	Dervish	Zuhrah	Esperanza
Start	June 3—11.15	June 3—11.15	June 3—11.15
Finish	June 8—1.20	June 8—7.30	June 9—5.22.46
Elapsed time	109.23.45	.....	.....
Corrected time	107.53.45	.....	.....

CLASS C.

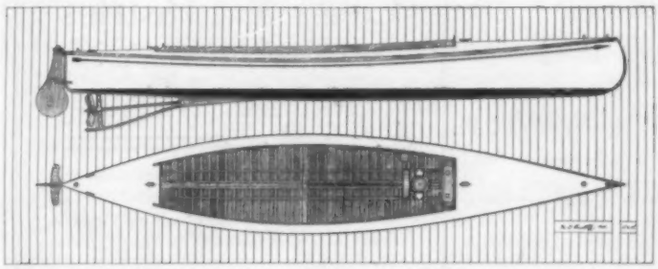
Length over all	65.6	67	.....
Vessel	Venona	Marchioness	Edith Anna
Start	June 3—11.20	June 3—11.20	June 3—11.20
Finish	June 7—3.45	June 7—9.05	Did not finish.
Elapsed time	99.32.15	105.01.40	.....
Corrected time	98.12.15	105.01.40	.....

Knots.

(*Continued from page* 85.)

Each strand then holds down a strand and is held down by the one beyond it. This is shown in the left-hand part of Fig. 9. The right hand shows the Wall Knot with the parts drawn down tight upon each other. This is the quickest form of the knot, and when drawn tight makes a very secure and firm end. It is often necessary, however, to secure a larger knot in the end of a rope, and for this purpose the double wall and single crown is used. A skeleton knot of this kind is shown in Fig. 10, which is made with braided strands, so that the turns may be easily followed. After the knot has been crowned in the usual way each strand is tucked into it in such a way as to follow its own part, and, as it might be said, each part or strand comes outside of itself. Such a knot made in a piece of Manila rope, the parts being all drawn tight, is shown in Fig. 11. This knot in a still more open form is shown in Fig. 12. Here the strands are left entirely open so that the course of each one may be readily followed. In Fig. 13 we have a double wall and double crown. This is also called a manrope knot. The ends in this case are tucked and tucked again alongside of themselves, and following their own parts until they come out at the bottom of the knot next the rope itself. Here they are either cut off or the rope is opened and each end tucked into it. This makes a large, handsome knot, getting its name from the fact that it is often used at the end of a manrope. In the engraving the knots are left open to show more clearly the positions of the strands when they come out of the knot. Ordinarily, only strands crossing each other are to be seen. In Fig. 14 the knot is made with braided cords. The strands passing through the rope, beside their own parts, appear double.

The Bintliff Motor Canoe



17 FEET BY 30 INCHES

Has engine, fuel and lubrication tank well out of the way forward, with flywheel aft of engine. Perfectly clear, free cockpit. Good submergence for propeller wheel, and a rudder which *fits* the stern post. Built with one, two or three cylinders in 2½, 5 or 7½ h.p.

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FOR ANY BOAT

from launch to steam yacht, there's nothing to compare with the Ingersoll Auto watch as an all 'round timekeeper. Small and handsome, it can be read from a considerable distance and it will stand the hardest usage without getting out of order. Holder screws on the bulkhead or any other convenient place, and is substantially water and acid proof.

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This new Ingersoll—the Junior—is one of the best outing watches ever made; it is small and light and closely resembles in appearance the ultra-thin models now so much in popular favor.

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CLOTHING LOCKERS

Necessary to the pleasure of club life—to say nothing of ending locker maintenance expense. Cannot burn; insure privacy; perfectly ventilated; absolutely sanitary. Not affected by dampness. Unit principle. Finish is enamel, prevented from flaking off by baking at high temperature. Olive green, or other colors to match interior woodwork.

Get Booklet YG, showing types of ALLSTEEL Lockers. State style, size, whole number, number to a row, for information on special lockers.

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The Best Spark Plug for Power Boat Use is the WICO

ASK your dealer for them and insist upon getting them. They are far superior to *any* plug on the market. They are practically self-cleaning and will not foul. This insures "sweet" running. Reduces cost for plugs to less than half, and increases efficiency. You don't have to guess the gap distance—the micrometer adjustment permits of setting to a KNOWN DISTANCE—to 1-1000 of an inch. Send $1.00 for a trial plug. Mission oak, brass trimmed case with orders for five or seven plugs. Each plug GUARANTEED for one year.

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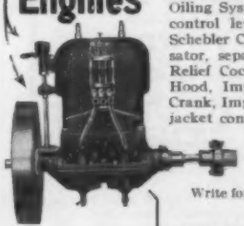
Lackawanna Marine Engines



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Write for 1908 Catalogue, giving description and prices of 10 sizes. 2½ h.p. to 45 h.p., one to six cylinders.

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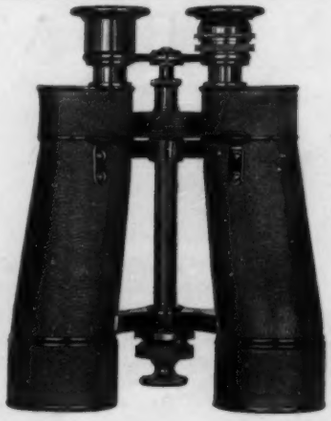

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is superior to others because of its great light-gathering power and high magnification. These qualities ensure clearer and wider range of vision and enable its use under unfavorable conditions of light and weather.

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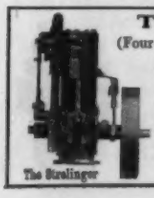

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(Four cycle, one to four cylinder) Absolutely the **Best Marine Engine Ever Made**

We also carry in stock several of the best makes of 2-Cycle Marine Engines, and a full line of Boat Accessories. Let us know your wants and we will quote prices.

Engines 1½ to 50 H. P., $33 to $2,500

Write for our 1908 Catalog

The Strelinger Marine Engine Co.
Dept. Y Detroit, Mich., U. S. A.

Racing Events for August.

August 1—
Milwaukee Y. C.—Cruising race to Whitefish Bay.
L. M. Y. A.—Regatta at Macatawa Bay.
Buffalo Y. C.—All-night race; Buffalo to Port Maitland and return, 80 miles.
Buffalo Launch Club—Speed boats.
Golden Gate Y. C.—Sacramento cruise.
Indian Harbor Y. C.—Annual regatta.
Narragansett Bay Yacht Racing Association.—Fletcher Cup race.
Rhode Island Y. C.—Run from Block Island to Newport.
Seawanahaka Corinthian Y. C.—Race to Marblehead.
Race for British International Cup on Huntington Bay.
Thousand Islands Y. C.—Annual club regatta.

August 2—
Golden Gate Y. C.—Two-day Sacramento cruise.
Rhode Island Y. C.—Run from Newport to Prudence Island Station.

August 3—
Motor Boat Club—Race Week off Huntington.

August 5—
New Rochelle Y. C.—Annual cruise.

August 6—
Brooklyn Y. C.—Annual cruise.
N. Y. Y. C.—Rendezvous at New London; annual cruise.

August 7—
Narragansett Bay Y. R. A.—Fletcher Cup races.

August 8—
Milwaukee Y. C.—Revel Cup race.
N. Y. Y. C.—Astor Cup race.
Bensonhurst Y. C.—Open race, Class M and under; championship G. B. Y. L. R. A.
Buffalo Y. C.—Free for all; Buffalo to Point Albino.
South Coast Y. C.—Start ocean race to Santa Barbara; sailing classes.
Narragansett Bay—Possner Cup race.
Huguenot Y. C.—Auxiliary races from New Rochelle to Cornfield Shoal lightship and return.
Toronto Motor Boat Y. C.—Cruise to Scarboro Bluffs.
Royal Hamilton Y. C.—Cruising yachts, Class A and B, and motor boats, to meet Toronto fleet.
Royal Canadian Y. C.—L. Y. R. A., cruising race to Hamilton.
Seawanahaka Corinthian Y. C.—Race, 15-footers.

August 9—
Quincy Y. C.—Club run to Marblehead.
So. Coast Y. C.—Start of ocean race to Santa Barbara. (Powerboats.)

August 10.—
Royal Hamilton-Crescent Y. C.—Start of Day Cup race.
Eastern Y. C.—Special open regatta for yachts not over 40-ft. rating.
Brooklyn Y. C.—Race around Montauk Point and Cape May. (Sailboats.)
New York Y. C.—King's Cup race.

August 11.—
American Power Boat Ass'n.—Start of annual cruise to Thousand Islands.
Hingham Y. C.—Moonlight race.

August 12.—
Corinthian Y. C.—Open race, 2.15 P. M. (First day Mid-Summer series.)
So. Coast Y. C.—Santa Barbara Club Challenge Cup race.

August 13.—
American Y. C.—Cruise to Marblehead.

Dean's

Cakes and Pastries *will add variety to* Summer Menus

Arrangements have been made whereby quick deliveries of fresh cake can be made at all Yacht Stations on the Atlantic Coast, within 300 miles of New York City.
All orders amounting to $2.00 or more will be sent

EXPRESSAGE PREPAID.

Selected assortments packed to keep fresh for days can be had at $2.00, $3.00, $5.00, $8.00 and $12.00 each.
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NON-VIBRATING

4 Cycle. 4 to 40 h. p. Horizontal Opposed Cylinders. Compact. Accessible. Low Center of Weight. Send for Catalog.

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BORATED TALCUM

TOILET POWDER

and insist that your barber use it also. **It is Antiseptic,** and will **prevent** any of the skin diseases often contracted.

A positive relief for **Sunburn, Chafing, Prickly Heat** and all afflictions of the skin. Removes odor of perspiration. **Get Mennen's**—the original. Put up in **non-refillable** boxes—the **"Box that Lox."** Sold everywhere or mailed for **25** cents. *Sample free.*

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No screws, nuts, or washers are used; no possible way for leakage to occur. *All weak points are overcome;* The *RADIO* has a longer life than any other Battery; it has greater capacity; the voltage of every cell is *uniform* and constant. *Capacity* the greatest for weight and size. Cannot Short Circuit, even under water.

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Our booklet entitled "The Safe ing" tells how the Roper Safety constructed, how it operates and plishes. Sent free on request.

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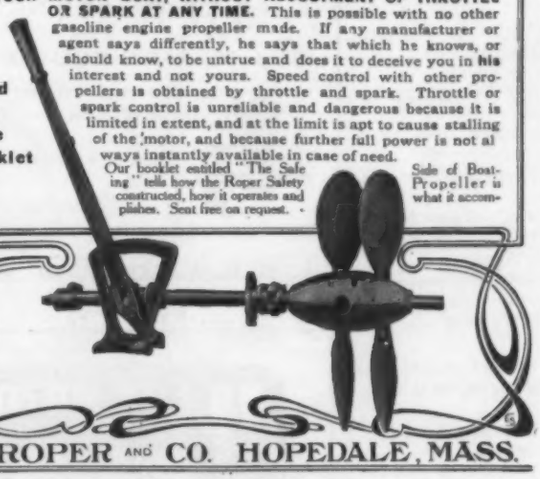

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It is the only *proved* system for marine use.

We prove its satisfactory service by testimonials from the numerous users.

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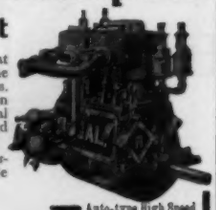

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FOUR CYCLE

are the most dependable and serviceable to be had.

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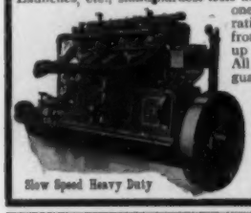

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Address **The Regal Gasolene Engine Co.**
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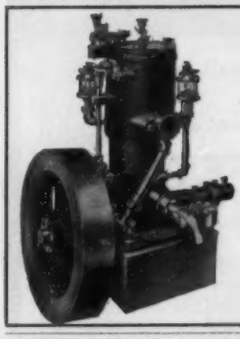

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Positive in action
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Medium weight and speed
2½ to 15 H. P.

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Mufflers, Air Whistles, Etc.

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August 14.—
So. Coast Y. C.—Arbitrary handicap for Chamber of Commerce Perpetual Cup.

August 15.—
Milwaukee Y. C.—Cruising race to Racine. At Chicago 21-footers will race for Lipton Cup.
Long distance powerboat races for Fred'k. S. Nock Cup.
Crescent-Royal Hamilton Y. C.—George Cup race.
Columbia Y. C.—First Three-days' Lipton Cup regatta.
Huguenot Y. C.—Annual races.

August 17.—
Maumee River Y. C.—Ralaco Cup race, open.
Corinthian Y. C.—First-day Quincy Cup races.
Royal Hamilton-Crescent Y. C.—Cruise of entire fleet to St. Lawrence River Point.
Quincy Y. C.—Quincy Y. C. Challenge Cup.
Yarmouth Y. C.—Beginning of national race off Marblehead.
White Bear Y. C.—Inland lake regatta on Lake Minnetonka.

August 18—
Royal Hamilton Y. C.—Corinthian Y. C.—Two-day Quincy Cup races; 2.15 P. M.

August 19—
International races off Marblehead.

August 20—
Buffalo Y. C.—Hurry-scurry race
Chippewa Yacht Club—Races for Gold Challenge Cup.

August 21—
Columbia Y. C. (Chicago)—30-mile race off Chicago Harbor. Motor boats.)

August 22—
Milwaukee Y. C.—Fourth Corinthian Cup race.
Beverly Y. C.—Fifth Corinthian race.
Golden Gate Y. C.—Cruise to Vallejo.
Narragansett Bay Yacht and Racing Association—Fletcher Cup race, Bristol.
Royal Hamilton Y. C.—Races for Lucas, Monck and Malloch Cups.
Detroit Motor Boat Club—Long distance race.
Royal Canadian Y. C.—Lansdowne Cup.
Seawanahaka Corinthian Y. C.—Races for 15-footers.
American Y. C.—Cruise to 'Squam.
Portland Y. C. (Me.).—Fifth dory race; first race of second-class series; first race of third-class series.

August 26—
Portland Y. C.—Second race of second-class series; second race of third-class series.

August 28—
Chicago Y. C.—First day Nutting Cup races.
Macatawa Y. C.—Miller Cup races; raceabouts.

August 29—
Beverly Y. C.—Sixth Corinthian race.
Bensonhurst Y. C.—Open race; Class M and under, for championship G. B. Y. R. A.
Rochester Y. C.—Club race; all classes; triangular course; 6 miles.
American Y. C.—Summer races.
Royal Hamilton Y. C.—Dinghy and yawl races.
Rhode Island Y. C.—Fall regatta.
Seawanahaka Corinthian Y. C.—Race for 15-footers.
Macatawa Bay Y. C.—Miller Cup races.

August 30.—
So. Coast Y. C.—Races to Isthmus, Nordlinger Clock.
New Illinois Athletic Ass'n. Yachtsmen—L. M. Y. A. at Chicago.

August 31.—
Atlantic Y. C.—Race, Thompson Challenge Trophy.
San Diego Y. C.—Lipton Cup races.
Macatawa Bay Y. C.—Miller Cup races.

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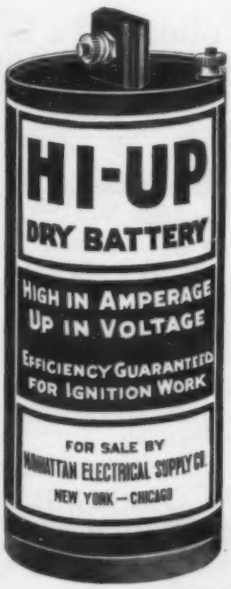

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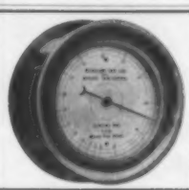

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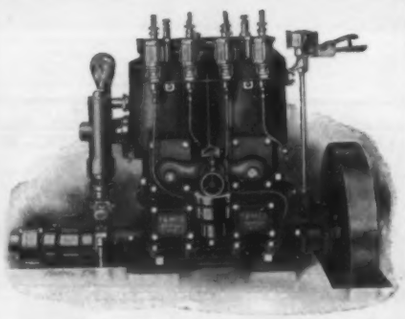

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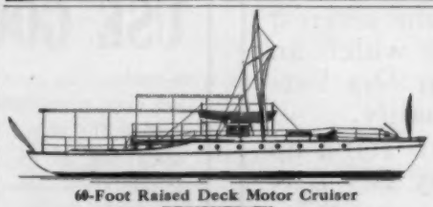

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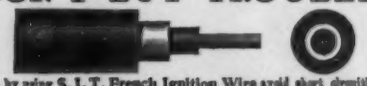

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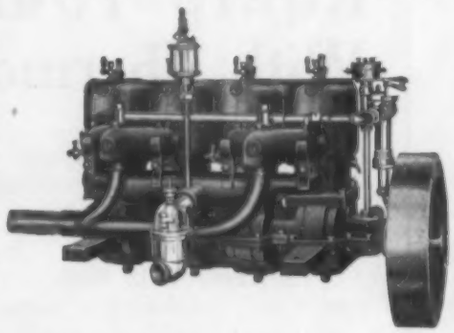

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